

**CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD**

**CENTRAL VALLEY REGION**

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**ORDER R5-2013-XXXX**  
**NPDES NO. CA0078671**

**WASTE DISCHARGE REQUIREMENTS FOR THE  
EL DORADO IRRIGATION DISTRICT  
EL DORADO HILLS WASTEWATER TREATMENT PLANT  
EL DORADO COUNTY**

The following Discharger is subject to waste discharge requirements as set forth in this Order:

**Table 1. Discharger Information**

<b>Discharger</b>	El Dorado Irrigation District
<b>Name of Facility</b>	El Dorado Hills Wastewater Treatment Plant
<b>Facility Address</b>	4625 Latrobe Road
	El Dorado Hills, CA 95762
	El Dorado County
The U.S. Environmental Protection Agency (USEPA) and the Regional Water Quality Control Board have classified this discharge as a major discharge.	

The discharge by the El Dorado Irrigation District from the discharge points identified below is subject to waste discharge requirements as set forth in this Order:

**Table 2. Discharge Location**

<b>Discharge Point</b>	<b>Effluent Description</b>	<b>Discharge Point Latitude</b>	<b>Discharge Point Longitude</b>	<b>Receiving Water</b>
001	Tertiary Treated Municipal Wastewater	38° 38' 18" N	121° 3' 38" W	Carson Creek

**Table 3. Administrative Information**

This Order was adopted by the Regional Water Quality Control Board on:	<b>&lt;Adoption Date&gt;</b>
This Order shall become effective on:	<b>&lt;Effective Date&gt;</b>
This Order shall expire on:	<b>&lt;Expiration Date&gt;</b>
The Discharger shall file a Report of Waste Discharge in accordance with title 23, California Code of Regulations, as application for issuance of new waste discharge requirements no later than:	<b>&lt;180 days prior to the Order expiration date OR insert date&gt;</b>

I, **PAMELA C. CREEDON**, Executive Officer, do hereby certify that this Order with all attachments is a full, true, and correct copy of an Order adopted by the California Regional Water Quality Control Board, Central Valley Region, on **<Adoption Date>**.

**PAMELA C. CREEDON**, Executive Officer

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## I. FACILITY INFORMATION

The following Discharger is subject to waste discharge requirements as set forth in this Order:

**Table 4. Facility Information**

<b>Discharger</b>	El Dorado Irrigation District
<b>Name of Facility</b>	El Dorado Hills Wastewater Treatment Plant
<b>Facility Address</b>	4625 Latrobe Road
	El Dorado Hills, CA 95762
	El Dorado County
<b>Facility Contact, Title, and Phone</b>	Vickie Caulfield, Operations Division Manager, (530) 642-4058
<b>Mailing Address</b>	2980 Mosquito Road, Placerville, CA 95667
<b>Type of Facility</b>	Publicly Owned Treatment Works (POTW)
<b>Facility Design Flow</b>	4.0 million gallons per day (MGD)

## II. FINDINGS

The California Regional Water Quality Control Board, Central Valley Region (hereinafter Central Valley Water Board), finds:

**A. Background.** The El Dorado Irrigation District (hereinafter Discharger) is currently discharging pursuant to Order No. R5-2007-0069 and National Pollutant Discharge Elimination System (NPDES) Permit No. CA0078671. The Discharger submitted a Report of Waste Discharge, dated 17 November 2011, and applied for a NPDES permit renewal to discharge up to 4.0 MGD of treated wastewater from the El Dorado Hills Wastewater Treatment Plant, hereinafter Facility. The application was deemed complete on 31 January 2012.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

**B. Facility Description.** The Discharger owns and operates a POTW. The treatment system consists of a headworks, screening and grit removal, primary clarifiers, activated sludge basins with nitrification, biological nutrient removal tanks, secondary clarifiers, tertiary filters, dissolved air flotation sludge thickening, belt filter press, anaerobic digester, and ultraviolet light (UV) disinfection. Wastewater is discharged from Discharge Point No. 001 (see table on cover page) to Carson Creek, a water of the United States, and a tributary to the Cosumnes River within the San Joaquin River watershed. Attachment B provides a map of the area around the Facility. Attachment C provides a flow schematic of the Facility.

**C. Legal Authorities.** This Order is issued pursuant to section 402 of the Clean Water Act (CWA) and implementing regulations adopted by USEPA and chapter 5.5, division 7 of the California Water Code (Water Code; commencing with section 13370). It shall serve as a NPDES permit for point source discharges from this facility to surface

waters. This Order also serves as Waste Discharge Requirements (WDRs) pursuant to article 4, chapter 4, division 7 of the Water Code (commencing with section 13260).

- D. Background and Rationale for Requirements.** The Central Valley Water Board developed the requirements in this Order based on information submitted as part of the application, through monitoring and reporting programs, and other available information. The Fact Sheet (Attachment F), which contains background information and rationale for Order requirements, is hereby incorporated into this Order and constitutes part of the Findings for this Order. Attachments A through E and G through I are also incorporated into this Order.
- E. California Environmental Quality Act (CEQA).** Under Water Code section 13389, this action to adopt an NPDES permit is exempt from the provisions of CEQA, Public Resources Code sections 21100-21177.
- F. Technology-based Effluent Limitations.** Section 301(b) of the CWA and implementing USEPA permit regulations at section 122.44, title 40 of the Code of Federal Regulations (40 CFR 122.44), require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR Part 133. A detailed discussion of the technology-based effluent limitations development is included in the Fact Sheet.
- G. Water Quality-based Effluent Limitations (WQBELs).** Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as technology equivalence requirements, which are necessary to achieve water quality standards. The Central Valley Water Board has considered the factors listed in Water Code section 13241 in establishing these requirements. The rationale for these requirements, which consist of tertiary treatment or equivalent requirements, is discussed in the Fact Sheet.

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

- H. Water Quality Control Plans.** The Central Valley Water Board adopted a *Water Quality Control Plan, Fourth Edition (Revised October 2011)*, for the Sacramento and

San Joaquin River Basins (hereinafter Basin Plan) that designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. The Basin Plan at page II-2.00 states that the “...*beneficial uses of any specifically identified water body generally apply to its tributary streams.*” Table II-1 of the Basin Plan identifies the beneficial uses of certain specific water bodies. The Basin Plan does not specifically identify beneficial uses for Carson Creek, but does identify present and potential uses in Table II-1 for the Cosumnes River, to which Carson Creek, via Deer Creek, is tributary. In addition, the Basin Plan implements State Water Resources Control Board (State Water Board) Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply. Thus, as discussed in detail in the Fact Sheet, beneficial uses applicable to Carson Creek are as follows:

**Table 5. Basin Plan Beneficial Uses**

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Carson Creek	<u>Existing uses from Table II-1 of the Basin Plan:</u> Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Water contact recreation, including canoeing and rafting (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); Migration of aquatic organisms, warm and cold (MIGR); Spawning, reproduction, and/or early development, warm and cold (SPWN); Wildlife habitat (WILD). <u>Suitable uses from State Water Board Resolution No.88-63:</u> Municipal and domestic supply (MUN).
--	Groundwater	Municipal and domestic supply (MUN); Industrial service supply (IND); Industrial process supply (PROC); Agricultural supply, including irrigation and stock watering (AGR).

The Basin Plan includes a list of Water Quality Limited Segments (WQLSs), which are defined as “...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.).” The Basin Plan also states, “Additional treatment beyond minimum federal standards will be imposed on dischargers to WQLSs. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.” Carson Creek is listed as a WQLS for aluminum and manganese in the 303(d) list of impaired water bodies. Effluent limitations for aluminum are included in this Order.

Requirements of this Order implement the Basin Plan.

- I. National Toxics Rule (NTR) and California Toxics Rule (CTR).** USEPA adopted the NTR on 22 December 1992, and later amended it on 4 May 1995 and 9 November 1999. About 40 criteria in the NTR applied in California. On 18 May 2000, USEPA adopted the CTR. The CTR promulgated new toxics criteria for California and, in addition, incorporated the previously adopted NTR criteria that were applicable in the state. The CTR was amended on 13 February 2001. These rules contain water quality criteria for priority pollutants.
- J. State Implementation Policy.** On 2 March 2000, the State Water Board adopted the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (State Implementation Policy or SIP). The SIP became effective on 28 April 2000 with respect to the priority pollutant criteria promulgated for California by USEPA through the NTR and to the priority pollutant objectives established by the Central Valley Water Board in the Basin Plan. The SIP became effective on 18 May 2000 with respect to the priority pollutant criteria promulgated by USEPA through the CTR. The State Water Board adopted amendments to the SIP on 24 February 2005 that became effective on 13 July 2005. The SIP establishes implementation provisions for priority pollutant criteria and objectives and provisions for chronic toxicity control. Requirements of this Order implement the SIP.
- K. Compliance Schedules and Interim Requirements – Not Applicable**
- L. Alaska Rule.** On 30 March 2000, USEPA revised its regulation that specifies when new and revised state and tribal water quality standards become effective for CWA purposes. (40 CFR 131.21 and 65 FR 24641 (27 April 2000).) Under the revised regulation (also known as the Alaska rule), new and revised standards submitted to USEPA after 30 May 2000, must be approved by USEPA before being used for CWA purposes. The final rule also provides that standards already in effect and submitted to USEPA by 30 May 2000 may be used for CWA purposes, whether or not approved by USEPA.
- M. Stringency of Requirements for Individual Pollutants.** This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The

technology-based effluent limitations consist of restrictions on flow and percent removal requirements for 5-day biochemical oxygen demand (BOD<sub>5</sub>) and total suspended solids (TSS). The WQBELs consist of restrictions on alpha-BHC, aluminum, ammonia, bis (2-ethylhexyl) phthalate, BOD<sub>5</sub>, endrin aldehyde, heptachlor, heptachlor epoxide, mercury, nitrate plus nitrite, pH, total coliform organisms, and TSS. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes effluent limitations for BOD, TSS, and total coliform organisms to meet numeric objectives or protect beneficial uses.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless "*applicable water quality standards for purposes of the [Clean Water] Act*" pursuant to 40 CFR 131.21(c)(1). Collectively, this Order's restrictions on individual pollutants are no more stringent than required to implement the technology-based requirements of the CWA and the applicable water quality standards for purposes of the CWA.

- N. Antidegradation Policy.** 40 CFR 131.12 requires that the state water quality standards include an antidegradation policy consistent with the federal policy. The State Water Board established California's antidegradation policy in State Water Board Resolution No. 68-16. Resolution No. 68-16 incorporates the federal antidegradation policy where the federal policy applies under federal law. Resolution No. 68-16 requires that existing quality of waters be maintained unless degradation is justified based on specific findings. The Central Valley Water Board's Basin Plan implements, and incorporates by reference, both the state and federal antidegradation policies. As discussed in detail in the Fact Sheet, the permitted discharge is consistent with the antidegradation provision of 40 CFR 131.12 and Resolution No. 68-16.
- O. Anti-Backsliding Requirements.** Sections 303(d)(4) and 402(o)(2) of the CWA and federal regulations at 40 CFR 122.44(l) prohibit backsliding in NPDES permits. These anti-backsliding provisions require effluent limitations in a reissued permit to be as stringent as those in the previous permit, with some exceptions. Some effluent limitations in this Order are less stringent than those in Order No. R5-2007-0069. As discussed in detail in the Fact Sheet, this relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.
- P. Endangered Species Act.** This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act

(16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The Discharger is responsible for meeting all requirements of the applicable Endangered Species Act.

- Q. Monitoring and Reporting.** 40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Central Valley Water Board to require technical and monitoring reports. The Monitoring and Reporting Program establishes monitoring and reporting requirements to implement federal and State requirements. The Monitoring and Reporting Program is provided in Attachment E.

The technical and monitoring reports in this Order are required in accordance with Water Code section 13267, which states the following in subsection (b)(1), *"In conducting an investigation specified in subdivision (a), the regional board may require that any person who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge waste within its region, or any citizen or domiciliary, or political agency or entity of this state who has discharged, discharges, or is suspected of having discharged or discharging, or who proposes to discharge, waste outside of its region that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the regional board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, the regional board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports."*

The monitoring reports required by this Order are necessary to determine compliance with this Order. The need for the monitoring reports is discussed in the Fact Sheet.

- R. Standard and Special Provisions.** Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42. The Central Valley Water Board has also included in this Order special provisions applicable to the Discharger. Some special provisions require submittal of technical reports. All technical reports are required in accordance with Water Code section 13267. The rationale for the special provisions and need for technical reports required in this Order is provided in the Fact Sheet.
- S. Provisions and Requirements Implementing State Law.** The provisions/requirements in sections IV.B, IV.C, V.B, and VI.A.2.o of this Order are included to implement State law only. These provisions/requirements are not required or authorized under the federal CWA; consequently, violations of these provisions/requirements are not subject to the enforcement remedies that are available for NPDES violations.



- T. Notification of Interested Parties.** The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe WDRs for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Details of notification are provided in the Fact Sheet of this Order.
- U. Consideration of Public Comment.** The Central Valley Water Board, in a public meeting, heard and considered all comments pertaining to the discharge. Details of the Public Hearing are provided in the Fact Sheet.

THEREFORE, IT IS HEREBY ORDERED, that Order No. R5-2007-0069 and Time Schedule Order R5-2010-0030-01 ~~is~~are rescinded upon the effective date of this Order except for enforcement purposes, and, in order to meet the provisions contained in division 7 of the Water Code (commencing with section 13000) and regulations adopted thereunder, and the provisions of the federal CWA and regulations and guidelines adopted thereunder, the Discharger shall comply with the requirements in this Order.

### III. DISCHARGE PROHIBITIONS

- A.** Discharge of wastewater at a location or in a manner different from that described in the Findings is prohibited.
- B.** The by-pass or overflow of wastes to surface waters is prohibited, except as allowed by Federal Standard Provisions I.G. and I.H. (Attachment D).
- C.** Neither the discharge nor its treatment shall create a nuisance as defined in section 13050 of the Water Code.
- D.** The Discharger shall not allow pollutant-free wastewater to be discharged into the treatment or disposal, system in amounts that significantly diminish the system's capability to comply with this Order. Pollutant-free wastewater means rainfall, groundwater, cooling waters, and condensates that are essentially free of pollutants.

## IV. EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

### A. Effluent Limitations – Discharge Point No. 001

#### 1. Final Effluent Limitations – Discharge Point No. 001

- a. The Discharger shall maintain compliance with the following effluent limitations at Discharge Point No. 001, with compliance measured at Monitoring Location EFF-001 as described in the Monitoring and Reporting Program:

**Table 6. Effluent Limitations – Discharge Point No. 001**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	30	--	--
	lbs/day <sup>1</sup>	334	500	1,000	--	--
pH	standard units	--	--	--	6.5	8.3
Total Suspended Solids	mg/L	10	15	30	--	--
	lbs/day <sup>1</sup>	334	500	1,000	--	--
Priority Pollutants						
alpha-BHC	µg/L	--	--	--	--	ND <sup>2</sup>
Bis (2-ethylhexyl) Phthalate	µg/L	1.8	--	3.6	--	--
Endrin aldehyde	µg/L	--	--	--	--	ND <sup>2</sup>
Heptachlor	µg/L	--	--	--	--	ND <sup>2</sup>
Heptachlor epoxide	µg/L	--	--	--	--	ND <sup>2</sup>
Non-Conventional Pollutants						
Ammonia Nitrogen, Total (as N)	mg/L	1.2	--	3.1	--	--
	lbs/day <sup>1</sup>	40	--	103	--	--
Nitrate plus Nitrite (as N)	mg/L	10	--	--	--	--

<sup>1</sup> Mass-based effluent limitations are based on a permitted average dry weather flow of 4.0 MGD.

<sup>2</sup> ND indicates non-detect. See section VII.F. for the protocol for evaluating compliance with the ND effluent limitation.

- b. **Percent Removal.** The average monthly percent removal of BOD<sub>5</sub> and TSS shall not be less than 85 percent.

- c. **Acute Whole Effluent Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

- i. 70%, minimum for any one bioassay; and
- ii. 90%, median for any three consecutive bioassays.

- d. **Chronic Whole Effluent Toxicity.** There shall be no chronic toxicity in the effluent discharge.

**e. Total Coliform Organisms.** Effluent total coliform organisms shall not exceed:

- i. 2.2 most probable number (MPN) per 100 mL, as a 7-day median;
- ii. 23 MPN/100 mL, more than once in any 30-day period; and
- iii. 240 MPN/100 mL, at any time.

**f. Average Dry Weather Flow.** The average dry weather discharge flow shall not exceed 4.0 MGD.

**g. Mercury, Total Recoverable.** The total monthly mass discharge of total mercury shall not exceed 0.0039 lbs/month.

**h. Aluminum, Total Recoverable.** For a calendar year, the annual average effluent concentration shall not exceed 200 µg/L.

**2. Interim Effluent Limitations – Not Applicable**

**B. Land Discharge Specifications – Storage Reservoir Discharge Point No. 002**

The unlined storage reservoir temporarily stores secondary treated effluent prior to tertiary treatment. The reservoir capacity is ~~82~~70 million gallons utilizing a six-inch freeboard measured vertically from the water surface to the top of the overflow spillway pipe in the control structure. The Discharger shall maintain compliance with the following land discharge specifications.

1. The discharge of waste classified as “hazardous” as defined in section 2521(a) of Title 23, California Code of Regulations (CCR), or “designated”, as defined in section 13173 of the CWC, to the treatment ponds is prohibited.
2. Storage reservoir freeboard shall never be less than 6 inches (measured vertically from the water surface to the top of the overflow spillway pipe located in the control structure). This requirement ensures that the minimum 2 feet of freeboard, as required by the Division of Dam Safety, shall be maintained because the top of the spillway pipe is 2 feet below the lowest point of overflow of the reservoir levee. See the Fact Sheet section IV.D-E.2.

**C. Reclamation Specifications**

1. All uses of reclaimed water shall be in accordance with a Master Reclamation Permit issued in accordance with Title 22 and the Water Code.
2. Conformance to reclaimed water effluent limitations shall be determined by the Master Reclamation Permit issued to the Discharger in accordance with Title 22 and the California Water Code.

## V. RECEIVING WATER LIMITATIONS

### A. Surface Water Limitations

Receiving water limitations are based on water quality objectives contained in the Basin Plan and are a required part of this Order. The discharge shall not cause the following in Carson Creek:

1. **Bacteria.** The fecal coliform concentration, based on a minimum of not less than five samples for any 30-day period, to exceed a geometric mean of 200 MPN/100 mL, nor more than 10 percent of the total number of fecal coliform samples taken during any 30-day period to exceed 400 MPN/100 mL.
2. **Biostimulatory Substances.** Water to contain biostimulatory substances which promote aquatic growths in concentrations that cause nuisance or adversely affect beneficial uses.
3. **Chemical Constituents.** Chemical constituents to be present in concentrations that adversely affect beneficial uses.
4. **Color.** Discoloration that causes nuisance or adversely affects beneficial uses.
5. **Dissolved Oxygen:**
  - a. The monthly median of the mean daily dissolved oxygen concentration to fall below 85 percent of saturation in the main water mass;
  - b. The 95 percentile dissolved oxygen concentration to fall below 75 percent of saturation; nor
  - c. The dissolved oxygen concentration to be reduced below 7.0 mg/L at any time.
6. **Floating Material.** Floating material to be present in amounts that cause nuisance or adversely affect beneficial uses.
7. **Oil and Grease.** Oils, greases, waxes, or other materials to be present in concentrations that cause nuisance, result in a visible film or coating on the surface of the water or on objects in the water, or otherwise adversely affect beneficial uses.
8. **pH.** The pH to be depressed below 6.5 nor raised above 8.5.
9. **Pesticides:**
  - a. Pesticides to be present, individually or in combination, in concentrations that adversely affect beneficial uses;
  - b. Pesticides to be present in bottom sediments or aquatic life in concentrations that adversely affect beneficial uses;

- c. Total identifiable persistent chlorinated hydrocarbon pesticides to be present in the water column at concentrations detectable within the accuracy of analytical methods approved by USEPA or the Executive Officer;
- d. Pesticide concentrations to exceed those allowable by applicable antidegradation policies (see State Water Board Resolution No. 68-16 and 40 CFR 131.12);
- e. Pesticide concentrations to exceed the lowest levels technically and economically achievable;
- f. Pesticides to be present in concentration in excess of the maximum contaminant levels set forth in CCR, Title 22, division 4, chapter 15; nor
- g. Thiobencarb to be present in excess of 1.0 µg/L.

**10. Radioactivity:**

- a. Radionuclides to be present in concentrations that are harmful to human, plant, animal, or aquatic life nor that result in the accumulation of radionuclides in the food web to an extent that presents a hazard to human, plant, animal, or aquatic life.
- b. Radionuclides to be present in excess of the maximum contaminant levels (MCLs) specified in Table 64442 of section 64442 and Table 64443 of section 64443 of Title 22 of the California Code of Regulations.

**11. Suspended Sediments.** The suspended sediment load and suspended sediment discharge rate of surface waters to be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

**12. Settleable Substances.** Substances to be present in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.

**13. Suspended Material.** Suspended material to be present in concentrations that cause nuisance or adversely affect beneficial uses.

**14. Taste and Odors.** Taste- or odor-producing substances to be present in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.

**15. Temperature.** The natural temperature to be increased by more than 5°F. Compliance to be determined based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

**16. Toxicity.** Toxic substances to be present, individually or in combination, in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.

## **17. Turbidity.**

- a. Shall not exceed 2 Nephelometric Turbidity Units (NTU) where natural turbidity is less than 1 NTU;
- b. Shall not increase more than 1 NTU where natural turbidity is between 1 and 5 NTUs;
- c. Shall not increase more than 20 percent where natural turbidity is between 5 and 50 NTUs;
- d. Shall not increase more than 10 NTU where natural turbidity is between 50 and 100 NTUs; nor
- e. Shall not increase more than 10 percent where natural turbidity is greater than 100 NTUs.

A 1-month averaging period may be used when determining compliance with this receiving water limitation for turbidity.

## **B. Groundwater Limitations**

1. Release of waste constituents from any storage, treatment or disposal component associated with the Facility, in combination with other sources, shall not cause the underlying groundwater to contain waste constituents in concentrations greater than background quality or Water Quality Objectives, whichever is greater.

## **VI. PROVISIONS**

### **A. Standard Provisions**

1. The Discharger shall comply with all Standard Provisions (federal NPDES standard conditions from 40 CFR Part 122) included in Attachment D of this Order.
2. The Discharger shall comply with the following provisions:
  - a. If the Discharger's wastewater treatment plant is publicly owned or subject to regulation by California Public Utilities Commission, it shall be supervised and operated by persons possessing certificates of appropriate grade according to Title 23, CCR, division 3, chapter 26.
  - b. After notice and opportunity for a hearing, this Order may be terminated or modified for cause, including, but not limited to:
    - i. violation of any term or condition contained in this Order;
    - ii. obtaining this Order by misrepresentation or by failing to disclose fully all relevant facts;

- iii. a change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge; and
- iv. a material change in the character, location, or volume of discharge.

The causes for modification include:

- *New regulations.* New regulations have been promulgated under section 405(d) of the CWA, or the standards or regulations on which the permit was based have been changed by promulgation of amended standards or regulations or by judicial decision after the permit was issued.
- *Land application plans.* When required by a permit condition to incorporate a land application plan for beneficial reuse of sewage sludge, to revise an existing land application plan, or to add a land application plan.
- *Change in sludge use or disposal practice.* Under 40 CFR 122.62(a)(1), a change in the Discharger's sludge use or disposal practice is a cause for modification of the permit. It is cause for revocation and reissuance if the Discharger requests or agrees.

The Central Valley Water Board may review and revise this Order at any time upon application of any affected person or the Central Valley Water Board's own motion.

- c. If a toxic effluent standard or prohibition (including any scheduled compliance specified in such effluent standard or prohibition) is established under section 307(a) of the CWA, or amendments thereto, for a toxic pollutant that is present in the discharge authorized herein, and such standard or prohibition is more stringent than any limitation upon such pollutant in this Order, the Central Valley Water Board will revise or modify this Order in accordance with such toxic effluent standard or prohibition.

The Discharger shall comply with effluent standards and prohibitions within the time provided in the regulations that establish those standards or prohibitions, even if this Order has not yet been modified.

- d. This Order shall be modified, or alternately revoked and reissued, to comply with any applicable effluent standard or limitation issued or approved under sections 301(b)(2)(C) and (D), 304(b)(2), and 307(a)(2) of the CWA, if the effluent standard or limitation so issued or approved:
  - i. Contains different conditions or is otherwise more stringent than any effluent limitation in the Order; or
  - ii. Controls any pollutant limited in the Order.

The Order, as modified or reissued under this paragraph, shall also contain any other requirements of the CWA then applicable.

- e. The provisions of this Order are severable. If any provision of this Order is found invalid, the remainder of this Order shall not be affected.
- f. The Discharger shall take all reasonable steps to minimize any adverse effects to waters of the State or users of those waters resulting from any discharge or sludge use or disposal in violation of this Order. Reasonable steps shall include such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge or sludge use or disposal.
- g. The Discharger shall ensure compliance with any existing or future pretreatment standard promulgated by USEPA under section 307 of the CWA, or amendment thereto, for any discharge to the municipal system.
- h. A copy of this Order shall be maintained at the discharge facility and be available at all times to operating personnel. Key operating personnel shall be familiar with its content.
- i. Safeguard to electric power failure:
  - i. The Discharger shall provide safeguards to assure that, should there be reduction, loss, or failure of electric power, the discharge shall comply with the terms and conditions of this Order.
  - ii. Upon written request by the Central Valley Water Board, the Discharger shall submit a written description of safeguards. Such safeguards may include alternate power sources, standby generators, retention capacity, operating procedures, or other means. A description of the safeguards provided shall include an analysis of the frequency, duration, and impact of power failures experienced over the past 5 years on effluent quality and on the capability of the Discharger to comply with the terms and conditions of the Order. The adequacy of the safeguards is subject to the approval of the Central Valley Water Board.
  - iii. Should the treatment works not include safeguards against reduction, loss, or failure of electric power, or should the Central Valley Water Board not approve the existing safeguards, the Discharger shall, within 90 days of having been advised in writing by the Central Valley Water Board that the existing safeguards are inadequate, provide to the Central Valley Water Board and USEPA a schedule of compliance for providing safeguards such that in the event of reduction, loss, or failure of electric power, the Discharger shall comply with the terms and conditions of this Order. The schedule of compliance shall, upon approval of the Central Valley Water Board, become a condition of this Order.
- j. The Discharger, upon written request of the Central Valley Water Board, shall file with the Board a technical report on its preventive (failsafe) and contingency (cleanup) plans for controlling accidental discharges, and for minimizing the effect of such events. This report may be combined with that required under the



Central Valley Water Board Standard Provision contained in section VI.A.2.i of this Order.

The technical report shall:

- i. Identify the possible sources of spills, leaks, untreated waste by-pass, and contaminated drainage. Loading and storage areas, power outage, waste treatment unit outage, and failure of process equipment, tanks and pipes should be considered.
- ii. Evaluate the effectiveness of present facilities and procedures and state when they became operational.
- iii. Predict the effectiveness of the proposed facilities and procedures and provide an implementation schedule containing interim and final dates when they will be constructed, implemented, or operational.

The Central Valley Water Board, after review of the technical report, may establish conditions which it deems necessary to control accidental discharges and to minimize the effects of such events. Such conditions shall be incorporated as part of this Order, upon notice to the Discharger.

- k. A publicly owned treatment works whose waste flow has been increasing, or is projected to increase, shall estimate when flows will reach hydraulic and treatment capacities of its treatment and disposal facilities. The projections shall be made in January, based on the last 3 years' average dry weather flows, peak wet weather flows and total annual flows, as appropriate. When any projection shows that capacity of any part of the facilities may be exceeded in 4 years, the Discharger shall notify the Central Valley Water Board by 31 January. A copy of the notification shall be sent to appropriate local elected officials, local permitting agencies and the press. Within 120 days of the notification, the Discharger shall submit a technical report showing how it will prevent flow volumes from exceeding capacity or how it will increase capacity to handle the larger flows. The Central Valley Water Board may extend the time for submitting the report.
- l. The Discharger shall submit technical reports as directed by the Executive Officer. All technical reports required herein that involve planning, investigation, evaluation, or design, or other work requiring interpretation and proper application of engineering or geologic sciences, shall be prepared by or under the direction of persons registered to practice in California pursuant to California Business and Professions Code, sections 6735, 7835, and 7835.1. To demonstrate compliance with Title 16, CCR, sections 415 and 3065, all technical reports must contain a statement of the qualifications of the responsible registered professional(s). As required by these laws, completed technical reports must bear the signature(s) and seal(s) of the registered professional(s) in a manner such that all work can be clearly attributed to the professional responsible for the work.

- m. The Central Valley Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.
- n. For publicly owned treatment works, prior to making any change in the point of discharge, place of use, or purpose of use of treated wastewater that results in a permanent decrease of flow in any portion of a watercourse, the Discharger must file a petition with the State Water Board, Division of Water Rights, and receive approval for such a change. (Water Code section 1211).
- o. In the event the Discharger does not comply or will be unable to comply for any reason, with any prohibition, maximum daily effluent limitation, 1-hour average effluent limitation, or receiving water limitation contained in this Order, the Discharger shall notify the Central Valley Water Board by telephone (916) 464-3291 within 24 hours of having knowledge of such noncompliance, and shall confirm this notification in writing within 5 days, unless the Central Valley Water Board waives confirmation. The written notification shall include the information required by the Standard Provision contained in Attachment D section V.E.1. [40 CFR 122.41(l)(6)(i)].
- p. Failure to comply with provisions or requirements of this Order, or violation of other applicable laws or regulations governing discharges from this facility, may subject the Discharger to administrative or civil liabilities, criminal penalties, and/or other enforcement remedies to ensure compliance. Additionally, certain violations may subject the Discharger to civil or criminal enforcement from appropriate local, state, or federal law enforcement entities.
- q. In the event of any change in control or ownership of land or waste discharge facilities presently owned or controlled by the Discharger, the Discharger shall notify the succeeding owner or operator of the existence of this Order by letter, a copy of which shall be immediately forwarded to the Central Valley Water Board.

To assume operation under this Order, the succeeding owner or operator must apply in writing to the Executive Officer requesting transfer of the Order. The request must contain the requesting entity's full legal name, the state of incorporation if a corporation, address and telephone number of the persons responsible for contact with the Central Valley Water Board and a statement. The statement shall comply with the signatory and certification requirements in the federal Standard Provisions (Attachment D, section V.B) and state that the new owner or operator assumes full responsibility for compliance with this Order. Failure to submit the request shall be considered a discharge without requirements, a violation of the Water Code. Transfer shall be approved or disapproved in writing by the Executive Officer.

## **B. Monitoring and Reporting Program Requirements**

The Discharger shall comply with the Monitoring and Reporting Program, and future revisions thereto, in Attachment E of this Order.

## C. Special Provisions

### 1. Reopener Provisions

- a. Conditions that necessitate a major modification of a permit are described in 40 CFR 122.62, including, but not limited to:
  - i. If new or amended applicable water quality standards are promulgated or approved pursuant to section 303 of the CWA, or amendments thereto, this permit may be reopened and modified in accordance with the new or amended standards.
  - ii. When new information, that was not available at the time of permit issuance, would have justified different permit conditions at the time of issuance.
- b. This Order may be reopened for modification, or revocation and reissuance, as a result of the detection of a reportable priority pollutant generated by special conditions included in this Order. These special conditions may be, but are not limited to, fish tissue sampling, whole effluent toxicity, monitoring requirements on internal waste stream(s), and monitoring for surrogate parameters. Additional requirements may be included in this Order as a result of the special condition monitoring data.
- c. **Mercury.** If mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted, this Order shall be reopened and the mass effluent limitation modified (higher or lower) or an effluent concentration limitation imposed. If the Central Valley Water Board determines that a mercury offset program is feasible for Dischargers subject to a NPDES permit, then this Order may be reopened to reevaluate the mercury mass loading limitation(s) and the need for a mercury offset program for the Discharger.
- d. **Whole Effluent Toxicity.** As a result of a Toxicity Reduction Evaluation (TRE), this Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if the State Water Board revises the SIP's toxicity control provisions that would require the establishment of numeric chronic toxicity effluent limitations, this Order may be reopened to include the numeric chronic toxicity effluent limitation based on the new provisions.
- e. **Water Effects Ratios (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents, except for copper. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

## 2. Special Studies, Technical Reports and Additional Monitoring Requirements

- a. Chronic Whole Effluent Toxicity.** For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct chronic whole effluent toxicity (WET) testing, as specified in the Monitoring and Reporting Program (Attachment E, section V). Furthermore, this Provision requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity. If the discharge exhibits toxicity, as described in subsection ii below, the Discharger is required to initiate a TRE in accordance with an approved TRE Workplan, and take actions to mitigate the impact of the discharge and prevent recurrence of toxicity. A TRE is a site-specific study conducted in a stepwise process to identify the source(s) of toxicity and the effective control measures for effluent toxicity. TREs are designed to identify the causative agents and sources of effluent toxicity, evaluate the effectiveness of the toxicity control options, and confirm the reduction in effluent toxicity. This Provision includes requirements for the Discharger to develop and submit a TRE Workplan and includes procedures for accelerated chronic toxicity monitoring and TRE initiation.
- i. Toxicity Reduction Evaluation (TRE) Workplan.** Within 90 days of the effective date of this Order, the Discharger shall submit to the Central Valley Water Board a TRE Workplan for approval by the Executive Officer. Resubmission of a prior approved TRE Workplan, updated as necessary, is an acceptable means of complying with this requirement. The TRE Workplan shall outline the procedures for identifying the source(s) of, and reducing or eliminating effluent toxicity. The TRE Workplan must be developed in accordance with USEPA guidance<sup>1</sup> and be of adequate detail to allow the Discharger to immediately initiate a TRE as required in this Provision.
- ii. Accelerated Monitoring and TRE Initiation.** When the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity monitoring, the Discharger shall initiate accelerated monitoring as required in the Accelerated Monitoring Specifications. The Discharger shall initiate a TRE to address effluent toxicity if any WET testing results exceed the numeric toxicity monitoring trigger during accelerated monitoring.
- iii. Numeric Toxicity Monitoring Trigger.** The numeric toxicity monitoring trigger to initiate a TRE is  $> 1 \text{ TU}_c$  (where  $\text{TU}_c = 100/\text{NOEC}$ ). The monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to begin accelerated monitoring and initiate a TRE when the effluent exhibits toxicity.
- iv. Accelerated Monitoring Specifications.** If the numeric toxicity monitoring trigger is exceeded during regular chronic toxicity testing, the Discharger shall initiate accelerated monitoring within 14 days of notification by the laboratory

<sup>1</sup> See the Fact Sheet (Attachment F, section VII.B.2.a. for a list of USEPA guidance documents that must be considered in the development of the TRE Workplan.)

of the exceedance. Accelerated monitoring shall consist of four (4) chronic toxicity tests conducted once every 2 weeks using the species that exhibited toxicity. The following protocol shall be used for accelerated monitoring and TRE initiation:

- (a) If the results of four (4) consecutive accelerated monitoring tests do not exceed the monitoring trigger, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring. However, notwithstanding the accelerated monitoring results, if there is evidence of effluent toxicity, the Executive Officer may require that the Discharger initiate a TRE.
- (b) If the source(s) of the toxicity is easily identified (e.g., temporary plant upset), the Discharger shall make necessary corrections to the facility and shall continue accelerated monitoring until four (4) consecutive accelerated tests do not exceed the monitoring trigger. Upon confirmation that the effluent toxicity has been removed, the Discharger may cease accelerated monitoring and resume regular chronic toxicity monitoring.
- (c) If the result of any accelerated toxicity test exceeds the monitoring trigger, the Discharger shall cease accelerated monitoring and begin a TRE to investigate the cause(s) of, and identify corrective actions to reduce or eliminate effluent toxicity. Within thirty (30) days of notification by the laboratory of any test result exceeding the monitoring trigger during accelerated monitoring, the Discharger shall submit a TRE Action Plan to the Central Valley Water Board including, at minimum:
  - (1) Specific actions the Discharger will take to investigate and identify the cause(s) of toxicity, including a TRE WET monitoring schedule;
  - (2) Specific actions the Discharger will take to mitigate the impact of the discharge and prevent the recurrence of toxicity; and
  - (3) A schedule for these actions.

### **3. Best Management Practices and Pollution Prevention**

- a. **Salinity Evaluation and Minimization Plan.** The Discharger shall update and implement the salinity evaluation and minimization plan to continue to identify and address sources of salinity from the Facility.

### **4. Construction, Operation and Maintenance Specifications**

- a. **Turbidity.** The Discharger shall operate the treatment system to ensure that turbidity prior to disinfection shall not exceed any of the following:
  - i. 2 NTU, as a daily average;
  - ii. 5 NTU, more than 5% of the time within a 24-hour period;
  - iii. 10 NTU, at any time.

- b. UV Disinfection System Operating Specifications.** The Discharger shall operate the UV disinfection system to provide a minimum hourly average UV dose per channel of 100 millijoules per square centimeter ( $\text{mJ}/\text{cm}^2$ ) at peak daily flow and shall maintain an adequate dose for disinfection while discharging to Carson Creek, unless operated by an alternative plan approved by the Department of Public Health (DPH) or the Executive Officer.
- i. The Discharger shall provide continuous, reliable monitoring of flow, UV transmittance, UV power, and turbidity.
  - ii. The minimum hourly average UV transmittance (at 254 nanometers) in the wastewater exiting the UV disinfection system shall not fall below 55 percent of maximum at any time.
  - iii. The quartz sleeves and cleaning system components must be visually inspected per the manufacturer's operations manual for physical wear (scoring, solarization, seal leaks, cleaning fluid levels, etc.) and to check the efficacy of the cleaning system.
  - iv. The lamp sleeves must be cleaned periodically as necessary to meet the requirements.
  - v. Lamps must be replaced per the manufacturer's operations manual, or sooner, if there are indications the lamps are failing to provide adequate disinfection. Lamp age and lamp replacement records must be maintained.
  - vi. The Facility must be operated in accordance with an operations and maintenance program that assures adequate disinfection.
- c. Storage Reservoir and Drain Pond Operating Requirements**
- i. The treatment facilities, including the storage reservoir and drain ponds, shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency.
  - ii. Public contact with wastewater shall be precluded through such means as fences, signs, and other acceptable alternatives.
  - iii. Objectionable odors originating at this facility shall not be perceivable beyond the limits of the wastewater treatment and disposal areas (*or property owned by the Discharger*). As a means of discerning compliance, the dissolved oxygen content in the upper zone (1 foot) of wastewater in the storage reservoir and drain ponds shall not be less than 1.0 mg/L
  - iv. The storage reservoir and drain ponds shall be managed to prevent breeding of mosquitoes. In particular,
    - (a) An erosion control program should assure that small coves and irregularities are not created around the perimeter of the water surface.

(b) Weeds shall be minimized.

(c) Dead algae, vegetation, and debris shall not accumulate on the water surface.

- v. The freeboard in the drain ponds shall never be less than 2 feet (measured vertically from the water surface to the lowest point of overflow).

## **5. Special Provisions for Municipal Facilities (POTWs Only)**

### **a. Pretreatment Requirements**

The Discharger shall implement its Industrial Pretreatment Program. The Discharger is not required to update their pretreatment program unless directed by USEPA or the Central Valley Water Board.

- i. The Discharger shall be responsible and liable for the performance of all Control Authority pretreatment requirements contained in 40 CFR Part 403, including any subsequent regulatory revisions to 40 CFR Part 403. Where 40 CFR Part 403 or subsequent revision places mandatory actions upon the Discharger as Control Authority but does not specify a timetable for completion of the actions, the Discharger shall complete the required actions within 6 months from the issuance date of this permit or the effective date of the 40 CFR Part 403 revisions, whichever comes later. For violations of requirements, the Discharger shall be subject to enforcement actions, penalties, fines, and other remedies by USEPA or other appropriate parties, as provided in the CWA.
- ii. The Discharger shall enforce the requirements promulgated under sections 307(b), 307(c), 307(d), and 402(b) of the CWA with timely, appropriate and effective enforcement actions. The Discharger shall cause all nondomestic users subject to federal categorical standards to achieve compliance no later than the date specified in those requirements or, in the case of a new nondomestic user, upon commencement of the discharge.
- iii. The Discharger shall perform the pretreatment functions as required in 40 CFR Part 403 including, but not limited to:
  - (a) Implement the necessary legal authorities as provided in 40 CFR 403.8(f)(1);
  - (b) Enforce the pretreatment requirements under 40 CFR 403.5 and 403.6;
  - (c) Implement the programmatic functions as provided in 40 CFR 403.8(f)(2); and
  - (d) Provide the requisite funding and personnel to implement the pretreatment program as provided in 40 CFR 403.8(f)(3).

- iv. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the necessary legal authorities, programs, and controls to ensure that the following incompatible wastes are not introduced to the treatment system, where incompatible wastes are:
  - (a) Wastes which create a fire or explosion hazard in the treatment works;
  - (b) Wastes which will cause corrosive structural damage to treatment works, but in no case wastes with a pH lower than 5.0, unless the works is specially designed to accommodate such wastes;
  - (c) Solid or viscous wastes in amounts which cause obstruction to flow in sewers, or which cause other interference with proper operation or treatment works;
  - (d) Any waste, including oxygen demanding pollutants (BOD, etc.), released in such volume or strength as to cause inhibition or disruption in the treatment works, and subsequent treatment process upset and loss of treatment efficiency;
  - (e) Heat in amounts that inhibit or disrupt biological activity in the treatment works, or that raise influent temperatures above 40°C (104°F), unless the Central Valley Water Board approves alternate temperature limits;
  - (f) Petroleum oil, non-biodegradable cutting oil, or products of mineral oil origin in amounts that will cause interference or pass through;
  - (g) Pollutants which result in the presence of toxic gases, vapors, or fumes within the treatment works in a quantity that may cause acute worker health and safety problems; and
  - (h) Any trucked or hauled pollutants, except at points predesignated by the Discharger.
- v. The Discharger shall implement, as more completely set forth in 40 CFR 403.5, the legal authorities, programs, and controls necessary to ensure that indirect discharges do not introduce pollutants into the sewerage system that, either alone or in conjunction with a discharge or discharges from other sources:
  - (a) Flow through the system to the receiving water in quantities or concentrations that cause a violation of this Order, or
  - (b) Inhibit or disrupt treatment processes, treatment system operations, or sludge processes, use, or disposal and either cause a violation of this Order or prevent sludge use or disposal in accordance with this Order.

**b. Sludge/Biosolids Treatment or Discharge Specifications.** Sludge in this document means the solid, semisolid, and liquid residues removed during



primary, secondary, or advanced wastewater treatment processes. Solid waste refers to grit and screening material generated during preliminary treatment. Residual sludge means sludge that will not be subject to further treatment at the wastewater treatment plant. Biosolids refer to sludge that has been treated and tested and shown to be capable of being beneficially and legally used pursuant to federal and state regulations as a soil amendment for agricultural, silvicultural, horticultural, and land reclamation activities as specified under 40 CFR Part 503.

- i. Collected screenings, residual sludge, biosolids, and other solids removed from liquid wastes shall be disposed of in a manner approved by the Executive Officer, and consistent with Consolidated Regulations for Treatment, Storage, Processing, or Disposal of Solid Waste, as set forth in Title 27, CCR, division 2, subdivision 1, section 20005, et seq. Removal for further treatment, storage, disposal, or reuse at sites (e.g., landfill, composting sites, soil amendment sites) that are operated in accordance with valid waste discharge requirements issued by a Regional Water Board will satisfy these specifications.
- ii. Sludge and solid waste shall be removed from screens, sumps, ponds, clarifiers, etc. as needed to ensure optimal plant performance.
- iii. The treatment of sludge generated at the Facility shall be confined to the Facility property and conducted in a manner that precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations in section V.B. of this Order. In addition, the storage of residual sludge, solid waste, and biosolids on Facility property shall be temporary and controlled, and contained in a manner that minimizes leachate formation and precludes infiltration of waste constituents into soils in a mass or concentration that will violate groundwater limitations included in section V.B. of this Order.
- iv. The use, disposal, storage, and transportation of biosolids shall comply with existing federal and state laws and regulations, including permitting requirements and technical standards included in 40 CFR Part 503. If the State Water Board and the Central Valley Water Board are given the authority to implement regulations contained in 40 CFR Part 503, this Order may be reopened to incorporate appropriate time schedules and technical standards. The Discharger must comply with the standards and time schedules contained in 40 CFR Part 503 whether or not they have been incorporated into this Order.
- v. The Discharger shall comply with Section IX.A. Biosolids of the Monitoring and Reporting Program, Attachment E.
- vi. Any proposed change in biosolids use or disposal practice from a previously approved practice shall be reported to the Executive Officer and USEPA Regional Administrator at least 90 days in advance of the change.

- vii. Within 180 days of the permit effective date,** the Discharger shall review and update its existing biosolids use or disposal plan, and submit it to the Central Valley Water Board. The updated plan shall describe at a minimum:
  - (a)** Sources and amounts of biosolids generated annually.
  - (b)** Location(s) of on-site storage and description of the containment area.
  - (c)** Plans for ultimate disposal. For landfill disposal, include the Central Valley Water Board's waste discharge requirement numbers that regulate the particular landfill; the present classification of the landfill; and the name and location of the landfill.
- viii.** The Discharger is encouraged to comply with the "Manual of Good Practice for Agricultural Land Application of Biosolids" developed by the California Water Environment Association.
- ix.** Use of biosolids as a soil amendment shall comply with valid waste discharge requirements (WDRs) issued by the State or Regional Water Boards. In most cases, this means the WDRs contained in the State Water Resources Control Board Water Quality Order No. 2004-0012-DWQ, General Waste Discharge Requirements for the Discharge of Biosolids to Land for Use as a Soil Amendment in Agricultural, Silvicultural, Horticultural, and Land Reclamation Activities (Biosolids General Order). For a biosolids use project to be covered by the Biosolids General Order, the Discharger must file a complete Notice of Intent and receive a Notice of Applicability for each project.

**c. Biosolids Storage and Transportation Specifications**

Biosolids shall be considered to be "stored" if they are placed on the ground or in non-mobile containers (i.e. not in a truck or trailer) at an intermediate storage location away from the generator/processing for more than 48 hours. Biosolids shall be considered to be "staged" if placed on the ground for brief periods of time solely to facilitate transfer of the biosolids between transportation and application vehicles.

- i.** Biosolids shall not be stored directly on the ground at any one location for more than seven (7) consecutive days.
- ii.** Facilities for the storage of Class B biosolids shall be located, designed and maintained to restrict public access to biosolids.
- iii.** Biosolids storage facilities shall be designed and maintained to prevent washout or inundation from a storm or flood with a return frequency of 100 years.
- iv.** Biosolids storage facilities, which contain biosolids, shall be designed and maintained to contain all storm water falling on the biosolids storage area during a rainfall year with a return frequency of 100 years.

- v. Biosolids placed on site for more than 24 hours shall be covered.
  - vi. Biosolids storage facilities shall be designed, maintained and operated to minimize the generation of leachate and the effects of erosion.
  - vii. If biosolids are to be stored at the site, a plan describing the storage program and means of complying with the specifications contained in sections VI.C.5.b and c of this Order shall be submitted for the Central Valley Water Board's staff approval. The storage plan shall also include an adverse weather plan.
  - viii. The Discharger shall operate the biosolids storage facilities in accordance with the approved biosolids storage plan.
  - ix. The Discharger shall immediately remove and relocate any biosolids stored on site in violation of this General Order.
  - x. All biosolids shall be transported in covered vehicles capable of containing the designated load.
  - xi. All biosolids having a water content that is capable of leaching liquids shall be transported in leak proof vehicles.
  - xii. Each biosolids transport driver shall be trained as to the nature of its load and the proper response to accidents or spill events and shall carry a copy of an approved spill response plan.
  - xiii. The Discharger shall avoid the use of haul routes near residential land uses to the extent possible. If the use of haul routes near residential land uses cannot be avoided, the Discharger shall limit project-related truck traffic to daylight hours.
- d. Collection System.** On 2 May 2006, the State Water Board adopted State Water Resources Control Board Order No. 2006-0003-DWQ, Statewide General Waste Discharge Requirements (WDRs) for Sanitary Sewer Systems. The Discharger shall be subject to the requirements of Order No. 2006-0003-DWQ and any future revisions thereto. Order No. 2006-0003-DWQ requires that all public agencies that currently own or operate sanitary sewer systems apply for coverage under the general WDRs. The Discharger has applied for and has been approved for coverage under Order 2006-0003-DWQ for operation of its wastewater collection system.
- e. Continuous Monitoring Systems.** This Order, and the Monitoring and Reporting Program which is a part of this Order, requires that certain parameters be monitored on a continuous basis. The wastewater treatment plant is not staffed on a full time basis. Permit violations or system upsets can go undetected during this period. The Discharger shall establish an electronic system for operator notification for continuous recording device alarms. For existing continuous monitoring systems, the electronic notification system shall be installed within 6 months of adoption of this permit. For systems installed

following permit adoption, the notification system shall be installed simultaneously.

## **6. Other Special Provisions**

- a. Wastewater shall be oxidized, coagulated, filtered, and adequately disinfected pursuant to DPH reclamation criteria, CCR, Title 22, division 4, chapter 3, (Title 22), or equivalent.

## **7. Compliance Schedules – Not Applicable**

# **VII. COMPLIANCE DETERMINATION**

- A. BOD<sub>5</sub> and TSS Effluent Limitations (Section IV.A.1.a and IV.A.1.b).** Compliance with the final effluent limitations for BOD<sub>5</sub> and TSS required in Limitations and Discharge Requirements section IV.A.1.a shall be ascertained by 24-hour composite samples. Compliance with effluent limitations required in Limitations and Discharge Requirements section IV.A.1.b for percent removal shall be calculated using the arithmetic mean of BOD<sub>5</sub> and TSS in effluent samples collected over a monthly period as a percentage of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period.
- B. Aluminum Effluent Limitations (Section IV.A.1.h).** Compliance with the final effluent limitations for aluminum can be demonstrated using either total or acid-soluble (inductively coupled plasma/atomic emission spectrometry or inductively coupled plasma/mass spectrometry) analysis methods, as supported by USEPA's Ambient Water Quality Criteria for Aluminum document (EPA 440/5-86-008), or other standard methods that exclude aluminum silicate particles as approved by the Executive Officer.
- C. Total Mercury Mass Loading Effluent Limitations (Section IV.A.1.g). The procedures for calculating mass loadings are as follows:**
  1. The total pollutant mass load for each individual calendar month shall be determined using an average of all concentration data collected that month and the corresponding total monthly flow. All effluent monitoring data collected under the monitoring and reporting program, pretreatment program, and any special studies shall be used for these calculations. The total annual mass loading shall be the sum of the individual calendar months.
  2. In calculating compliance, the Discharger shall count all non-detect measures at one-half of the detection level. If compliance with the effluent limitation is not attained due to the non-detect contribution, the Discharger shall improve and implement available analytical capabilities and compliance shall be evaluated with consideration of the detection limits.
- D. Average Dry Weather Flow Effluent Limitations (Section IV.A.1.f).** The average dry weather discharge flow represents the daily average flow when groundwater is at or near normal and runoff is not occurring. Compliance with the average dry weather flow

effluent limitations will be determined annually based on the average daily flow over three consecutive dry weather months (e.g., July, August, and September).

- E. Total Coliform Organisms Effluent Limitations (Section IV.A.1.e).** For each day that an effluent sample is collected and analyzed for total coliform organisms, the 7-day median shall be determined by calculating the median concentration of total coliform bacteria in the effluent utilizing the bacteriological results of the last 7 days. For example, if a sample is collected on a Wednesday, the result from that sampling event and all results from the previous 6 days (i.e., Tuesday, Monday, Sunday, Saturday, Friday, and Thursday) are used to calculate the 7-day median. If the 7-day median of total coliform organisms exceeds a most probable number (MPN) of ~~23~~2.2 per 100 milliliters, the Discharger will be considered out of compliance.
- F. Instantaneous Maximum Effluent Limitation for alpha-BHC, Endrin Aldehyde, Heptachlor, and Heptachlor Epoxide (Section IV.A.1.a).** The Discharger shall use USEPA standard analytical techniques for analyzing alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide with a maximum reporting level not to exceed the minimum levels listed in Appendix 4 of the SIP (Table 2d). If the analytical result of a single effluent sample is detected for alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide and the result is greater than or equal to the reporting level, a violation will be flagged and the discharger will be considered out of compliance for that single sample.
- G. Mass Effluent Limitations.** The mass effluent limitations contained in the Final Effluent Limitations IV.A.1.a are based on the permitted average dry weather flow and calculated as follows:

$$\text{Mass (lbs/day)} = \text{Flow (MGD)} \times \text{Concentration (mg/L)} \times 8.34 \text{ (conversion factor)}$$

If the effluent flow exceeds the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations contained in Final Effluent Limitations IV.A.1.a shall not apply. If the effluent flow is below the permitted average dry weather flow during wet-weather seasons, the effluent mass limitations do apply.

**H. Priority Pollutant Effluent Limitations.** Compliance with effluent limitations for priority pollutants shall be determined in accordance with section 2.4.5 of the SIP, as follows: using sample reporting protocols defined in Attachment A and Attachment E of this Order. ~~For purposes of reporting and administrative enforcement by the Central Valley Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).~~

1. Dischargers shall be deemed out of compliance with an effluent limitation, if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).
2. Dischargers shall be required to conduct a Pollutant Minimization Program (PMP) in accordance with section 2.4.5.1 of the SIP when there is evidence that the priority pollutant is present in the effluent above an effluent limitation and either:
  - a. A sample result is reported as detected, but not quantified (DNQ) and the effluent limitation is less than the RL; or
  - b. A sample result is reported as not detected (ND) and the effluent limitation is less than the method detection level (MDL).
3. When determining compliance with an average monthly effluent limitation (AMEL) and more than one sample result is available in a month, the discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of DNQ or ND. In those cases, the discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure:
  - a. The data set shall be ranked from low to high, reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
  - b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.
- 3.4. If a sample result, or the arithmetic mean or median of multiple sample results, is below the RL, and there is evidence that the priority pollutant is present in the effluent above an effluent limitation and the discharger conducts a PMP (as described in section 2.4.5.1), the discharger shall not be deemed out of compliance.

- I. **Chronic Whole Effluent Toxicity Effluent Limitation (Section IV.A.1.d).** Compliance with the accelerated monitoring and TRE/TIE provisions of Provision VI.C.2.a shall constitute compliance with the effluent limitation.
- J. **Reporting Due Dates.** Reporting requirements shall be in accordance with due dates specified in this Order. If the due date is on a Saturday, Sunday, state holiday, or a day the corresponding Water Board(s) office(s) is closed, the due date shall be on the next business day.

## ATTACHMENT A – DEFINITIONS

### Arithmetic Mean ( $\mu$ )

Also called the average, is the sum of measured values divided by the number of samples. For ambient water concentrations, the arithmetic mean is calculated as follows:

Arithmetic mean =  $\mu = \Sigma x / n$       where:  $\Sigma x$  is the sum of the measured ambient water concentrations, and  $n$  is the number of samples.

### Average Monthly Effluent Limitation (AMEL)

The highest allowable average of daily discharges over a calendar month, calculated as the sum of all daily discharges measured during a calendar month divided by the number of daily discharges measured during that month.

### Average Weekly Effluent Limitation (AWEL)

The highest allowable average of daily discharges over a calendar week (Sunday through Saturday), calculated as the sum of all daily discharges measured during a calendar week divided by the number of daily discharges measured during that week.

### Bioaccumulative

Those substances taken up by an organism from its surrounding medium through gill membranes, epithelial tissue, or from food and subsequently concentrated and retained in the body of the organism.

### Carcinogenic

Pollutants are substances that are known to cause cancer in living organisms.

### Coefficient of Variation (CV)

CV is a measure of the data variability and is calculated as the estimated standard deviation divided by the arithmetic mean of the observed values.

### Daily Discharge

Daily Discharge is defined as either: (1) the total mass of the constituent discharged over the calendar day (12:00 am through 11:59 pm) or any 24-hour period that reasonably represents a calendar day for purposes of sampling (as specified in the permit), for a constituent with limitations expressed in units of mass or; (2) the unweighted arithmetic mean measurement of the constituent over the day for a constituent with limitations expressed in other units of measurement (e.g., concentration).

The daily discharge may be determined by the analytical results of a composite sample taken over the course of 1 day (a calendar day or other 24-hour period defined as a day) or by the arithmetic mean of analytical results from one or more grab samples taken over the course of the day.

For composite sampling, if 1 day is defined as a 24-hour period other than a calendar day, the analytical result for the 24-hour period will be considered as the result for the calendar day in which the 24-hour period ends.



### **Detected, but Not Quantified (DNQ)**

DNQ are those sample results less than the RL, but greater than or equal to the laboratory's MDL.

### **Dilution Credit**

Dilution Credit is the amount of dilution granted to a discharge in the calculation of a water quality-based effluent limitation, based on the allowance of a specified mixing zone. It is calculated from the dilution ratio or determined through conducting a mixing zone study or modeling of the discharge and receiving water.

### **Effluent Concentration Allowance (ECA)**

ECA is a value derived from the water quality criterion/objective, dilution credit, and ambient background concentration that is used, in conjunction with the coefficient of variation for the effluent monitoring data, to calculate a long-term average (LTA) discharge concentration. The ECA has the same meaning as waste load allocation (WLA) as used in USEPA guidance (Technical Support Document For Water Quality-based Toxics Control, March 1991, second printing, EPA/505/2-90-001).

### **Enclosed Bays**

Enclosed Bays means indentations along the coast that enclose an area of oceanic water within distinct headlands or harbor works. Enclosed bays include all bays where the narrowest distance between the headlands or outermost harbor works is less than 75 percent of the greatest dimension of the enclosed portion of the bay. Enclosed bays include, but are not limited to, Humboldt Bay, Bodega Harbor, Tomales Bay, Drake's Estero, San Francisco Bay, Morro Bay, Los Angeles-Long Beach Harbor, Upper and Lower Newport Bay, Mission Bay, and San Diego Bay. Enclosed bays do not include inland surface waters or ocean waters.

### **Estimated Chemical Concentration**

The estimated chemical concentration that results from the confirmed detection of the substance by the analytical method below the ML value.

### **Estuaries**

Estuaries means waters, including coastal lagoons, located at the mouths of streams that serve as areas of mixing for fresh and ocean waters. Coastal lagoons and mouths of streams that are temporarily separated from the ocean by sandbars shall be considered estuaries. Estuarine waters shall be considered to extend from a bay or the open ocean to a point upstream where there is no significant mixing of fresh water and seawater. Estuarine waters included, but are not limited to, the Sacramento-San Joaquin Delta, as defined in Water Code section 12220, Suisun Bay, Carquinez Strait downstream to the Carquinez Bridge, and appropriate areas of the Smith, Mad, Eel, Noyo, Russian, Klamath, San Diego, and Otay rivers. Estuaries do not include inland surface waters or ocean waters.

### **Inland Surface Waters**

All surface waters of the State that do not include the ocean, enclosed bays, or estuaries.

### **Instantaneous Maximum Effluent Limitation**

The highest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous maximum limitation).

### **Instantaneous Minimum Effluent Limitation**

The lowest allowable value for any single grab sample or aliquot (i.e., each grab sample or aliquot is independently compared to the instantaneous minimum limitation).

### **Maximum Daily Effluent Limitation (MDEL)**

The highest allowable daily discharge of a pollutant, over a calendar day (or 24-hour period). For pollutants with limitations expressed in units of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the arithmetic mean measurement of the pollutant over the day.

### **Median**

The middle measurement in a set of data. The median of a set of data is found by first arranging the measurements in order of magnitude (either increasing or decreasing order). If the number of measurements ( $n$ ) is odd, then the median =  $X_{(n+1)/2}$ . If  $n$  is even, then the median =  $(X_{n/2} + X_{(n/2)+1})/2$  (i.e., the midpoint between the  $n/2$  and  $n/2+1$ ).

### **Method Detection Limit (MDL)**

MDL is the minimum concentration of a substance that can be measured and reported with 99 percent confidence that the analyte concentration is greater than zero, as defined in 40 CFR Part 136, Attachment B, revised as of 3 July 1999.

### **Minimum Level (ML)**

ML is the concentration at which the entire analytical system must give a recognizable signal and acceptable calibration point. The ML is the concentration in a sample that is equivalent to the concentration of the lowest calibration standard analyzed by a specific analytical procedure, assuming that all the method specified sample weights, volumes, and processing steps have been followed.

### **Mixing Zone**

Mixing Zone is a limited volume of receiving water that is allocated for mixing with a wastewater discharge where water quality criteria can be exceeded without causing adverse effects to the overall water body.

### **Not Detected (ND)**

Sample results which are less than the laboratory's MDL.

### **Ocean Waters**

The territorial marine waters of the State as defined by California law to the extent these waters are outside of enclosed bays, estuaries, and coastal lagoons. Discharges to ocean waters are regulated in accordance with the State Water Board's California Ocean Plan.

### **Persistent Pollutants**

Persistent pollutants are substances for which degradation or decomposition in the environment is nonexistent or very slow.

### **Pollutant Minimization Program (PMP)**

PMP means waste minimization and pollution prevention actions that include, but are not limited to, product substitution, waste stream recycling, alternative waste management methods, and education of the public and businesses. The goal of the PMP shall be to reduce all potential sources of a priority pollutant(s) through pollutant minimization (control) strategies, including pollution prevention measures as appropriate, to maintain the effluent concentration at or below the water quality-based effluent limitation. Pollution prevention measures may be particularly appropriate for persistent bioaccumulative priority pollutants where there is evidence that beneficial uses are being impacted. The Central Valley Water Board may consider cost effectiveness when establishing the requirements of a PMP. The completion and implementation of a Pollution Prevention Plan, if required pursuant to Water Code section 13263.3(d), shall be considered to fulfill the PMP requirements.

### **Pollution Prevention**

Pollution Prevention means any action that causes a net reduction in the use or generation of a hazardous substance or other pollutant that is discharged into water and includes, but is not limited to, input change, operational improvement, production process change, and product reformulation (as defined in Water Code section 13263.3). Pollution prevention does not include actions that merely shift a pollutant in wastewater from one environmental medium to another environmental medium, unless clear environmental benefits of such an approach are identified to the satisfaction of the State or Regional Water Board.

### **Reporting Level (RL)**

~~RL is the ML (and its associated analytical method) chosen by the Discharger for reporting and compliance determination from the MLs included in this Order. The MLs included in this Order correspond to approved analytical methods for reporting a sample result that are selected by the Central Valley Water Board either from Appendix 4 of the SIP in accordance with section 2.4.2 of the SIP or established in accordance with section 2.4.3 of the SIP. The ML~~ RL must be established in accordance with section 2.4.2, section 2.4.3, and Appendix 4 of the SIP and must be based on the proper application of method-based analytical procedures for sample preparation and the absence of any matrix interferences. Other factors may be applied to the ~~ML~~ RL depending on the specific sample preparation steps employed. For example, the treatment typically applied in cases where there are matrix-effects is to dilute the sample or sample aliquot by a factor of ten. In such cases, this additional factor must be applied to the ~~ML~~ in the computation of the RL.

### **Satellite Collection System**

The portion, if any, of a sanitary sewer system owned or operated by a different public agency than the agency that owns and operates the wastewater treatment facility that a sanitary sewer system is tributary to.

### **Source of Drinking Water**

Any water designated as municipal or domestic supply (MUN) in a Regional Water Board Basin Plan.

### **Standard Deviation ( $\sigma$ )**

Standard Deviation is a measure of variability that is calculated as follows:

$$\sigma = (\sum[(x - \mu)^2]/(n - 1))^{0.5}$$

where:

$x$  is the observed value;

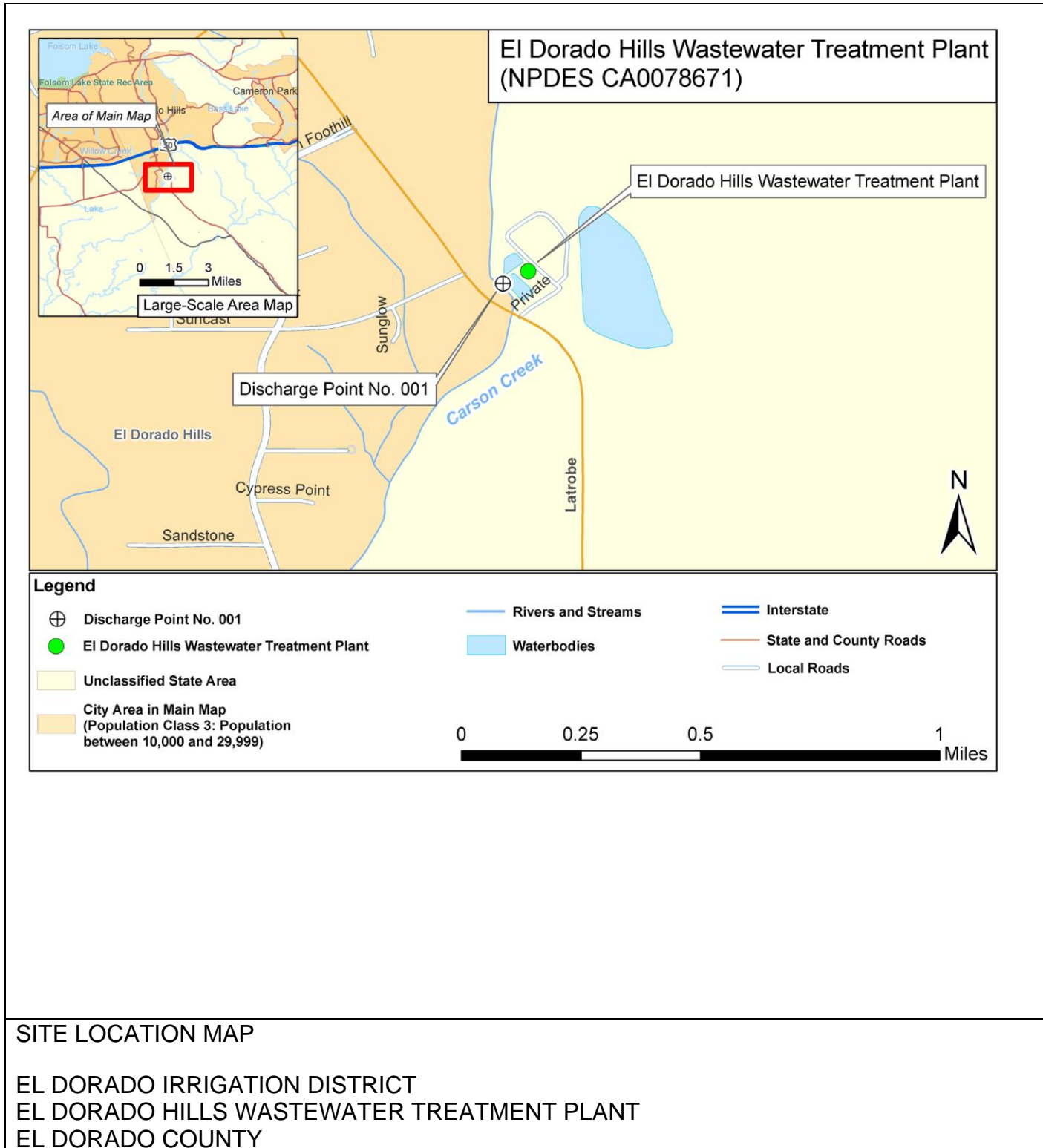
$\mu$  is the arithmetic mean of the observed values; and

$n$  is the number of samples.

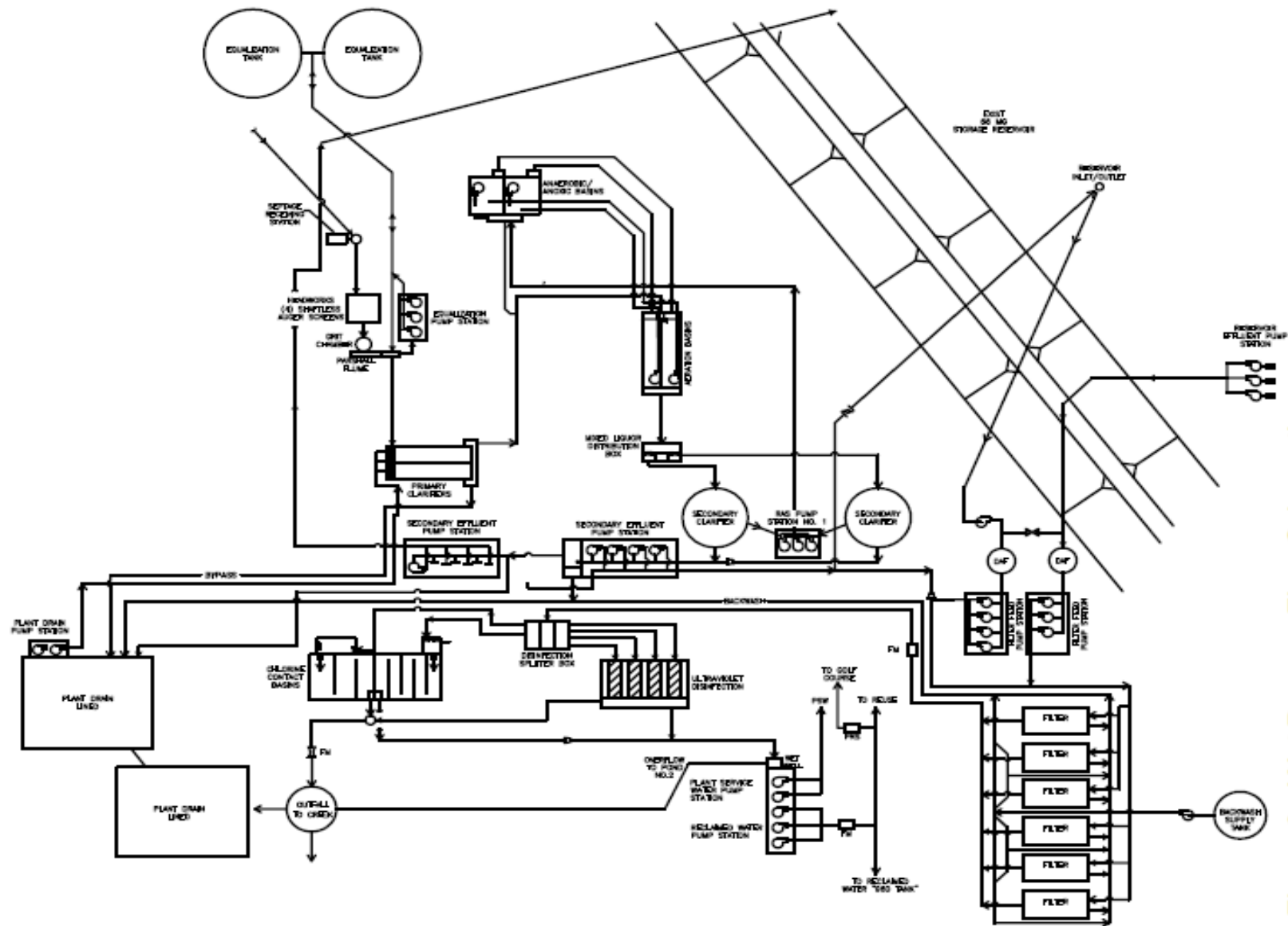
### **Toxicity Reduction Evaluation (TRE)**

TRE is a study conducted in a step-wise process designed to identify the causative agents of effluent or ambient toxicity, isolate the sources of toxicity, evaluate the effectiveness of toxicity control options, and then confirm the reduction in toxicity. The first steps of the TRE consist of the collection of data relevant to the toxicity, including additional toxicity testing, and an evaluation of facility operations and maintenance practices, and best management practices. A Toxicity Identification Evaluation (TIE) may be required as part of the TRE, if appropriate. (A TIE is a set of procedures to identify the specific chemical(s) responsible for toxicity. These procedures are performed in three phases (characterization, identification, and confirmation) using aquatic organism toxicity tests.)

## ATTACHMENT B – MAPS



## ATTACHMENT C – FLOW SCHEMATIC



## **ATTACHMENT D – STANDARD PROVISIONS**

### **I. STANDARD PROVISIONS – PERMIT COMPLIANCE**

#### **A. Duty to Comply**

1. The Discharger must comply with all of the conditions of this Order. Any noncompliance constitutes a violation of the Clean Water Act (CWA) and the California Water Code (Water Code) and is grounds for enforcement action, for permit termination, revocation and reissuance, or modification; or denial of a permit renewal application. (40 CFR 122.41(a).)
2. The Discharger shall comply with effluent standards or prohibitions established under section 307(a) of the CWA for toxic pollutants and with standards for sewage sludge use or disposal established under section 405(d) of the CWA within the time provided in the regulations that establish these standards or prohibitions, even if this Order has not yet been modified to incorporate the requirement. (40 CFR 122.41(a)(1).)

#### **B. Need to Halt or Reduce Activity Not a Defense**

It shall not be a defense for a Discharger in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this Order. (40 CFR 122.41(c))

#### **C. Duty to Mitigate**

The Discharger shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this Order that has a reasonable likelihood of adversely affecting human health or the environment. (40 CFR 122.41(d))

#### **D. Proper Operation and Maintenance**

The Discharger shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the Discharger to achieve compliance with the conditions of this Order. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of backup or auxiliary facilities or similar systems that are installed by a Discharger only when necessary to achieve compliance with the conditions of this Order. (40 CFR 122.41(e).)

#### **E. Property Rights**

1. This Order does not convey any property rights of any sort or any exclusive privileges. (40 CFR 122.41(g))

2. The issuance of this Order does not authorize any injury to persons or property or invasion of other private rights, or any infringement of state or local law or regulations. (40 CFR 122.5(c))

## **F. Inspection and Entry**

The Discharger shall allow the Regional Water Board, State Water Board, United States Environmental Protection Agency (USEPA), and/or their authorized representatives (including an authorized contractor acting as their representative), upon the presentation of credentials and other documents, as may be required by law, to (40 CFR 122.41(i); Water Code section 13383):

1. Enter upon the Discharger's premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of this Order (40 CFR 122.41(i)(1));
2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this Order (40 CFR 122.41(i)(2));
3. Inspect and photograph, at reasonable times, any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this Order (40 CFR 122.41(i)(3)); and
4. Sample or monitor, at reasonable times, for the purposes of assuring Order compliance or as otherwise authorized by the CWA or the Water Code, any substances or parameters at any location. (40 CFR 122.41(i)(4))

## **G. Bypass**

1. Definitions
  - a. "Bypass" means the intentional diversion of waste streams from any portion of a treatment facility. (40 CFR 122.41(m)(1)(i))
  - b. "Severe property damage" means substantial physical damage to property, damage to the treatment facilities, which causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production. (40 CFR 122.41(m)(1)(ii))
2. Bypass not exceeding limitations. The Discharger may allow any bypass to occur which does not cause exceedances of effluent limitations, but only if it is for essential maintenance to assure efficient operation. These bypasses are not subject to the provisions listed in Standard Provisions – Permit Compliance I.G.3, I.G.4, and I.G.5 below. (40 CFR 122.41(m)(2))



3. Prohibition of bypass. Bypass is prohibited, and the Regional Water Board may take enforcement action against a Discharger for bypass, unless (40 CFR 122.41(m)(4)(i)):
  - a. Bypass was unavoidable to prevent loss of life, personal injury, or severe property damage (40 CFR 122.41(m)(4)(i)(A));
  - b. There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate back-up equipment should have been installed in the exercise of reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventive maintenance (40 CFR 122.41(m)(4)(i)(B)); and
  - c. The Discharger submitted notice to the Regional Water Board as required under Standard Provisions – Permit Compliance I.G.5 below. (40 CFR 122.41(m)(4)(i)(C))
4. The Regional Water Board may approve an anticipated bypass, after considering its adverse effects, if the Regional Water Board determines that it will meet the three conditions listed in Standard Provisions – Permit Compliance I.G.3 above. (40 CFR 122.41(m)(4)(ii))
5. Notice
  - a. Anticipated bypass. If the Discharger knows in advance of the need for a bypass, it shall submit a notice, if possible at least 10 days before the date of the bypass. (40 CFR 122.41(m)(3)(i))
  - b. Unanticipated bypass. The Discharger shall submit notice of an unanticipated bypass as required in Standard Provisions - Reporting V.E below (24-hour notice). (40 CFR 122.41(m)(3)(ii))

## H. Upset

Upset means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the Discharger. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation. (40 CFR 122.41(n)(1))

1. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology based permit effluent limitations if the requirements of Standard Provisions – Permit Compliance I.H.2 below are met. No determination made during administrative review of claims that noncompliance was

caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. (40 CFR 122.41(n)(2))

2. Conditions necessary for a demonstration of upset. A Discharger who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs or other relevant evidence that (40 CFR 122.41(n)(3)):
  - a. An upset occurred and that the Discharger can identify the cause(s) of the upset (40 CFR 122.41(n)(3)(i));
  - b. The permitted facility was, at the time, being properly operated (40 CFR 122.41(n)(3)(ii));
  - c. The Discharger submitted notice of the upset as required in Standard Provisions – Reporting V.E.2.b below (24-hour notice) (40 CFR 122.41(n)(3)(iii)); and
  - d. The Discharger complied with any remedial measures required under Standard Provisions – Permit Compliance I.C above. (40 CFR 122.41(n)(3)(iv))
3. Burden of proof. In any enforcement proceeding, the Discharger seeking to establish the occurrence of an upset has the burden of proof. (40 CFR 122.41(n)(4))

## **II. STANDARD PROVISIONS – PERMIT ACTION**

### **A. General**

This Order may be modified, revoked and reissued, or terminated for cause. The filing of a request by the Discharger for modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any Order condition. (40 CFR 122.41(f))

### **B. Duty to Reapply**

If the Discharger wishes to continue an activity regulated by this Order after the expiration date of this Order, the Discharger must apply for and obtain a new permit. (40 CFR 122.41(b))

### **C. Transfers**

This Order is not transferable to any person except after notice to the Regional Water Board. The Regional Water Board may require modification or revocation and reissuance of the Order to change the name of the Discharger and incorporate such other requirements as may be necessary under the CWA and the Water Code. (40 CFR 122.41(l)(3) and 122.61)

### **III. STANDARD PROVISIONS – MONITORING**

- A.** Samples and measurements taken for the purpose of monitoring shall be representative of the monitored activity. (40 CFR 122.41(j)(1))
- B.** Monitoring results must be conducted according to test procedures under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503 unless other test procedures have been specified in this Order. (40 CFR 122.41(j)(4) and 122.44(i)(1)(iv))

### **IV. STANDARD PROVISIONS – RECORDS**

- A.** Except for records of monitoring information required by this Order related to the Discharger's sewage sludge use and disposal activities, which shall be retained for a period of at least 5 years (or longer as required by 40 CFR Part 503), the Discharger shall retain records of all monitoring information, including all calibration and maintenance records and all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this Order, and records of all data used to complete the application for this Order, for a period of at least three (3) years from the date of the sample, measurement, report or application. This period may be extended by request of the Regional Water Board Executive Officer at any time. (40 CFR 122.41(j)(2))

**B. Records of monitoring information shall include:**

- 1. The date, exact place, and time of sampling or measurements (40 CFR 122.41(j)(3)(i));
- 2. The individual(s) who performed the sampling or measurements (40 CFR 122.41(j)(3)(ii));
- 3. The date(s) analyses were performed (40 CFR 122.41(j)(3)(iii));
- 4. The individual(s) who performed the analyses (40 CFR 122.41(j)(3)(iv));
- 5. The analytical techniques or methods used (40 CFR 122.41(j)(3)(v)); and
- 6. The results of such analyses. (40 CFR 122.41(j)(3)(vi))

**C. Claims of confidentiality for the following information will be denied (40 CFR 122.7(b)):**

- 1. The name and address of any permit applicant or Discharger (40 CFR 122.7(b)(1)); and
- 2. Permit applications and attachments, permits and effluent data. (40 CFR 122.7(b)(2))

## **V. STANDARD PROVISIONS – REPORTING**

### **A. Duty to Provide Information**

The Discharger shall furnish to the Regional Water Board, State Water Board, or USEPA within a reasonable time, any information which the Regional Water Board, State Water Board, or USEPA may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this Order or to determine compliance with this Order. Upon request, the Discharger shall also furnish to the Regional Water Board, State Water Board, or USEPA copies of records required to be kept by this Order. (40 CFR 122.41(h); Wat. Code, § 13267)

### **B. Signatory and Certification Requirements**

1. All applications, reports, or information submitted to the Regional Water Board, State Water Board, and/or USEPA shall be signed and certified in accordance with Standard Provisions – Reporting V.B.2, V.B.3, V.B.4, and V.B.5 below. (40 CFR 122.41(k))
2. All permit applications shall be signed by either a principal executive officer or ranking elected official. For purposes of this provision, a principal executive officer of a federal agency includes: (i) the chief executive officer of the agency, or (ii) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., Regional Administrators of USEPA). (40 CFR 122.22(a)(3)).
3. All reports required by this Order and other information requested by the Regional Water Board, State Water Board, or USEPA shall be signed by a person described in Standard Provisions – Reporting V.B.2 above, or by a duly authorized representative of that person. A person is a duly authorized representative only if:
  - a. The authorization is made in writing by a person described in Standard Provisions – Reporting V.B.2 above (40 CFR 122.22(b)(1));
  - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility or activity such as the position of plant manager, operator of a well or a well field, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may thus be either a named individual or any individual occupying a named position.) (40 CFR 122.22(b)(2)); and
  - c. The written authorization is submitted to the Regional Water Board and State Water Board. (40 CFR 122.22(b)(3))
4. If an authorization under Standard Provisions – Reporting V.B.3 above is no longer accurate because a different individual or position has responsibility for the overall operation of the facility, a new authorization satisfying the requirements of Standard

Provisions – Reporting V.B.3 above must be submitted to the Regional Water Board and State Water Board prior to or together with any reports, information, or applications, to be signed by an authorized representative. (40 CFR 122.22(c))

5. Any person signing a document under Standard Provisions – Reporting V.B.2 or V.B.3 above shall make the following certification:

*“I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.”* (40 CFR 122.22(d))

### **C. Monitoring Reports**

1. Monitoring results shall be reported at the intervals specified in the Monitoring and Reporting Program (Attachment E) in this Order. (40 CFR 122.22(l)(4))
2. Monitoring results must be reported on a Discharge Monitoring Report (DMR) form or forms provided or specified by the Regional Water Board or State Water Board for reporting results of monitoring of sludge use or disposal practices. (40 CFR 122.41(l)(4)(i))
3. If the Discharger monitors any pollutant more frequently than required by this Order using test procedures approved under 40 CFR Part 136 or, in the case of sludge use or disposal, approved under 40 CFR Part 136 unless otherwise specified in 40 CFR Part 503, or as specified in this Order, the results of this monitoring shall be included in the calculation and reporting of the data submitted in the DMR or sludge reporting form specified by the Regional Water Board. (40 CFR 122.41(l)(4)(ii))
4. Calculations for all limitations, which require averaging of measurements, shall utilize an arithmetic mean unless otherwise specified in this Order. (40 CFR 122.41(l)(4)(iii))

### **D. Compliance Schedules**

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this Order, shall be submitted no later than 14 days following each schedule date. (40 CFR 122.41(l)(5))

### **E. Twenty-Four Hour Reporting**

1. The Discharger shall notify the Office of Emergency Services of any noncompliance that may endanger health or the environment within two (2) hours from the time the Discharger becomes aware of the circumstances. The Discharger shall notify the

Central Valley Water Board of the noncompliance by telephone or fax within 24 hours from the time the Discharger becomes aware of the circumstances. A written submission shall also be provided to the Central Valley Water Board within five (5) days of the time the Discharger becomes aware of the circumstances. The written submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times, and if the noncompliance has not been corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance. (40 CFR 122.41(l)(6)(i))

2. The following shall be included as information that must be reported within 24 hours under this paragraph (40 CFR 122.41(l)(6)(ii)):
  - a. Any unanticipated bypass that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(A))
  - b. Any upset that exceeds any effluent limitation in this Order. (40 CFR 122.41(l)(6)(ii)(B))
3. The Regional Water Board may waive the above-required written report under this provision on a case-by-case basis if an oral report has been received within 24 hours. (40 CFR 122.41(l)(6)(iii))

#### **F. Planned Changes**

The Discharger shall give notice to the Regional Water Board as soon as possible of any planned physical alterations or additions to the permitted facility. Notice is required under this provision only when (40 CFR 122.41(l)(1)):

1. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in 40 CFR 122.29(b) (40 CFR 122.41(l)(1)(i)); or
2. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are not subject to effluent limitations in this Order. (40 CFR 122.41(l)(1)(ii))
3. The alteration or addition results in a significant change in the Discharger's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan. (40 CFR 122.41(l)(1)(iii))

#### **G. Anticipated Noncompliance**

The Discharger shall give advance notice to the Regional Water Board or State Water Board of any planned changes in the permitted facility or activity that may result in noncompliance with General Order requirements. (40 CFR 122.41(l)(2))

## **H. Other Noncompliance**

The Discharger shall report all instances of noncompliance not reported under Standard Provisions – Reporting V.C, V.D, and V.E above at the time monitoring reports are submitted. The reports shall contain the information listed in Standard Provision – Reporting V.E above. (40 CFR 122.41(l)(7))

## **I. Other Information**

When the Discharger becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in a permit application or in any report to the Regional Water Board, State Water Board, or USEPA, the Discharger shall promptly submit such facts or information. (40 CFR 122.41(l)(8))

## **VI. STANDARD PROVISIONS – ENFORCEMENT**

- A.** The Regional Water Board is authorized to enforce the terms of this permit under several provisions of the Water Code, including, but not limited to, sections 13385, 13386, and 13387.

## **VII. ADDITIONAL PROVISIONS – NOTIFICATION LEVELS**

### **A. Publicly-Owned Treatment Works (POTWs)**

All POTWs shall provide adequate notice to the Regional Water Board of the following (40 CFR 122.42(b)):

- 1.** Any new introduction of pollutants into the POTW from an indirect discharger that would be subject to sections 301 or 306 of the CWA if it were directly discharging those pollutants (40 CFR 122.42(b)(1)); and
- 2.** Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of adoption of the Order. (40 CFR 122.42(b)(2))
- 3.** Adequate notice shall include information on the quality and quantity of effluent introduced into the POTW as well as any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW. (40 CFR 122.42(b)(3)).

## ATTACHMENT E – MONITORING AND REPORTING PROGRAM

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## **ATTACHMENT E – MONITORING AND REPORTING PROGRAM**

Title 40 of the Code of Federal Regulations (CFR), section 122.48 (40 CFR 122.48) requires that all NPDES permits specify monitoring and reporting requirements. California Water Code (Water Code) sections 13267 and 13383 also authorize the Regional Water Quality Control Board, Central Valley Region (Central Valley Water Board) to require technical and monitoring reports. This Monitoring and Reporting Program establishes monitoring and reporting requirements, which implement the federal and California regulations.

### **I. GENERAL MONITORING PROVISIONS**

- A.** Samples and measurements taken as required herein shall be representative of the volume and nature of the monitored discharge. All samples shall be taken at the monitoring locations specified below and, unless otherwise specified, before the monitored flow joins or is diluted by any other waste stream, body of water, or substance. Monitoring locations shall not be changed without notification to and the approval of the Central Valley Water Board.
- B.** Effluent samples shall be taken downstream of the last addition of wastes to the treatment or discharge works where a representative sample may be obtained prior to mixing with the receiving waters. Samples shall be collected at such a point and in such a manner to ensure a representative sample of the discharge.
- C.** Chemical, bacteriological, and bioassay analyses of any material required by this Order shall be conducted by a laboratory certified for such analyses by the Department of Public Health (DPH). Laboratories that perform sample analyses must be identified in all monitoring reports submitted to the Central Valley Water Board. In the event a certified laboratory is not available to the Discharger for any onsite field measurements such as pH, dissolved oxygen, turbidity, temperature and residual chlorine, such analyses performed by a noncertified laboratory will be accepted provided a Quality Assurance-Quality Control Program is instituted by the laboratory. A manual containing the steps followed in this program for any onsite field measurements such as pH, dissolved oxygen, turbidity, temperature and residual chlorine must be kept onsite in the treatment facility laboratory and shall be available for inspection by Central Valley Water Board staff. The Discharger must demonstrate sufficient capability (qualified and trained employees, properly calibrated and maintained field instruments, etc.) to adequately perform these field measurements. The Quality Assurance-Quality Control Program must conform to USEPA guidelines or to procedures approved by the Central Valley Water Board.
- D.** Appropriate flow measurement devices and methods consistent with accepted scientific practices shall be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. All monitoring instruments and devices used by the Discharger to fulfill the prescribed monitoring program shall be properly maintained and calibrated as necessary, at least yearly, to ensure their continued accuracy. All flow measurement devices shall be calibrated at least once per year to ensure continued accuracy of the devices.

- E. Monitoring results, including noncompliance, shall be reported at intervals and in a manner specified in this Monitoring and Reporting Program.
- F. Laboratories analyzing monitoring samples shall be certified by DPH, in accordance with the provision of Water Code section 13176, and must include quality assurance/quality control data with their reports.
- G. The Discharger shall conduct analysis on any sample provided by USEPA as part of the Discharge Monitoring Quality Assurance (DMQA) program. The results of any such analysis shall be submitted to USEPA's DMQA manager.
- H. The Discharger shall file with the Central Valley Water Board technical reports on self-monitoring performed according to the detailed specifications contained in this Monitoring and Reporting Program.
- I. The results of all monitoring required by this Order shall be reported to the Central Valley Water Board, and shall be submitted in such a format as to allow direct comparison with the limitations and requirements of this Order. Unless otherwise specified, discharge flows shall be reported in terms of the monthly average and the daily maximum discharge flows.

## II. MONITORING LOCATIONS

The Discharger shall establish the following monitoring locations to demonstrate compliance with the effluent limitations, discharge specifications, and other requirements in this Order:

**Table E-1. Monitoring Station Locations**

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	INF-001	A location where a representative sample of the influent into the Facility can be collected prior to entering the treatment process. 38° 38' 19" N, 121° 3' 36" W
001	EFF-001	<del>A location where a representative sample of effluent can be collected following tertiary treatment and disinfection. Downstream from the last connection through which wastes can be admitted to the outfall before being discharged to Carson Creek.</del> 38° 38' 13" N, 121° 3' 40" W
002	RES-001	<del>82-70</del> million gallon storage reservoir 38° 38' 14" N, 121° 3' 32" W
--	PND-001	Drain Pond 1 38° 38' 13" N, 121° 3' 39" W
--	PND-002	Drain Pond 2 38° 38' 15" N, 121° 3' 38" W
--	RSW-001	In Carson Creek, upstream of Discharge Point No. 001 38° 38' 16" N, 121° 3' 41" W
--	RSW-002	In Carson Creek, downstream of Discharge Point No. 001 38° 38' 9" N, 121° 3' 39" W

Discharge Point Name	Monitoring Location Name	Monitoring Location Description
--	GSW-001	Up gradient groundwater monitoring well east of the <del>82</del> <u>70</u> million gallon reservoir.
--	GSW-002	Down gradient groundwater monitoring well northwest of the <del>82</del> <u>70</u> million gallon reservoir.
--	GSW-003	Down gradient groundwater monitoring well southwest of the <del>82</del> <u>70</u> million gallon reservoir.
--	BIO-001	A location where a representative sample of the biosolids can be obtained.
--	UVS-001	A location where a representative sample of wastewater can be collected immediately before entering the ultraviolet light (UV) disinfection system.

### III. INFLUENT MONITORING REQUIREMENTS

#### A. Monitoring Location INF-001

1. The Discharger shall monitor influent to the Facility at Monitoring Location INF-001 as follows:

**Table E-2. Influent Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	<sup>1</sup>
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite <sup>2</sup>	3/Week	<sup>1</sup>
Total Suspended Solids	mg/L	24-hr Composite <sup>2</sup>	3/Week	<sup>1</sup>

<sup>1</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.

<sup>2</sup> 24-hour flow proportional composite.

## IV. EFFLUENT MONITORING REQUIREMENTS

### A. Monitoring Location EFF-001

1. The Discharger shall monitor tertiary treated effluent at Monitoring Location EFF-001 as follows. If more than one analytical test method is listed for a given parameter, the Discharger must select from the listed methods and corresponding Minimum Level:

**Table E-3. Effluent Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Flow	MGD	Meter	Continuous	<sup>1</sup>
<b>Conventional Pollutants</b>				
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	24-hr Composite <sup>2</sup>	3 <sup>2</sup> /Week	<sup>1</sup>
	lbs/day	Calculate	3 <sup>2</sup> /Week	--
pH	standard units	Grab	1/Day <sup>3,4</sup>	<sup>1</sup>
Total Suspended Solids	mg/L	24-hr Composite <sup>2</sup>	3 <sup>2</sup> /Week	<sup>1</sup>
	lbs/day	Calculate	3 <sup>2</sup> /Week	--
<b>Priority Pollutants</b>				
alpha-BHC	µg/L	Grab	1/Month	<sup>1,5</sup>
Bis (2-ethylhexyl) phthalate	µg/L	Grab	1/Quarter	<sup>1,5,6</sup>
Bis (2-chloroethyl) Ether	µg/L	Grab	<sup>9Z</sup>	<sup>1</sup>
Endrin aldehyde	µg/L	Grab	1/Month	<sup>1,5</sup>
Heptachlor	µg/L	Grab	1/Month	<sup>1,5</sup>
Heptachlor epoxide	µg/L	Grab	1/Month	<sup>1,5</sup>
Priority Pollutants and Other Constituents of Concern <sup>12</sup>	See Att. I	See Att. I	See Att. I	-- <sup>1,6</sup>
<b>Non-Conventional Pollutants</b>				
Aluminum, Total Recoverable	µg/L	Grab	1/Month	<sup>1,408</sup>
Ammonia Nitrogen, Total (as N)	mg/L	Grab	1/Week <sup>3,408</sup>	<sup>1</sup>
	lbs/day	Grab	1/Week	<sup>1</sup>
Hardness (as CaCO <sub>3</sub> )	mg/L	Grab	1/Month <sup>449</sup>	--
Nitrate Nitrogen, Total (as N)	mg/L	Grab	1/Week <sup>120</sup>	<sup>1</sup>
Nitrite Nitrogen, Total (as N)	mg/L	Grab	1/Week <sup>120</sup>	<sup>1</sup>
Temperature	°C	Grab	1/Day <sup>3,4</sup>	<sup>1</sup>
Total Coliform Organisms	MPN/100 mL	Grab	5 <sup>2</sup> /Week <sup>131</sup>	<sup>1</sup>

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
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- <sup>1</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136 or an EPA approved Alternate Testing Procedure; where no methods are specified for a given pollutant that meet a specific reporting limit or method performance standard, an alternate method can be approved by methods approved by the Central Valley Water Board or the State Water Board.
- <sup>2</sup> 24-hour flow proportional composite. If the duration of the effluent discharge is less than 24 hours, the sample type shall be a grab sample and taken within 24-hours of initiation of discharge.
- <sup>3</sup> pH and temperature shall be recorded at the time of ammonia sample collection.
- <sup>4</sup> A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.
- <sup>5</sup> For priority pollutant constituents with effluent limitations, detection limits shall be below the effluent limitations. If the lowest minimum level (ML) published in Appendix 4 of the Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California (State Implementation Plan or SIP) is not below the effluent limitation, the detection limit shall be the lowest ML. For priority pollutant constituents without effluent limitations, the detection limits shall be equal to or less than the lowest ML published in Appendix 4 of the SIP.
- <sup>6</sup> In order to verify if bis (2-ethylhexyl) phthalate is truly present in the effluent discharge, the Discharger shall take steps to assure that sample containers, sampling apparatus, and analytical equipment are not sources of the detected contaminant.
- <sup>7</sup> Volatile constituents shall be sampled in accordance with 40 CFR Part 136 or by methods approved by the Central Valley Water Board or the State Water Board.
- <sup>8</sup> Concurrent with receiving surface water sampling.
- <sup>97</sup> Shall be sampled monthly during the same year (3<sup>rd</sup> or 4<sup>th</sup> year of the permit term) as the priority pollutant monitoring required in Attachment I of this Order. The constituent shall be analyzed using the analytical methods described in 40 CFR Part 136, and, at a minimum, the ML shall be at the lowest ML published in the SIP.
- <sup>108</sup> Concurrent with whole effluent toxicity monitoring.
- <sup>149</sup> Hardness samples shall be collected concurrently with metals samples.
- <sup>120</sup> Monitoring for nitrite and nitrate shall be conducted concurrently.
- <sup>131</sup> Samples for total coliform organisms may be collected at any point following disinfection.
- <sup>12</sup> The maximum required Reporting Level is specified in Attachment I, Table I-1, Priority Pollutants and Other Constituents of Concern.

~~2. If the discharge is intermittent rather than continuous, then on the first day of each such intermittent discharge, the Discharger shall monitor and record data for all of the constituents listed above, except for priority pollutants and constituents with monitoring frequencies less frequent than monthly, after which the frequencies of analysis given in the schedule shall apply for the duration of each such intermittent discharge. In no event shall the Discharger be required to monitor and record data more often than twice the frequencies listed in the schedule. The Discharger is not required to conduct acute or chronic toxicity monitoring if the discharge is intermittent rather than continuous.~~

## V. WHOLE EFFLUENT TOXICITY TESTING REQUIREMENTS

**A. Acute Toxicity Testing.** The Discharger shall conduct acute toxicity testing to determine whether the effluent is contributing acute toxicity to the receiving water. The Discharger shall meet the following acute toxicity testing requirements:

1. Monitoring Frequency – The Discharger shall perform acute toxicity testing once every two months, concurrent with effluent ammonia sampling, during periods of discharge to Carson Creek. The bi-monthly monitoring periods shall be defined as the following: December and January; February and March; April and May; June and July; August and September; and October and November.
2. Sample Types – For static non-renewal and static renewal testing, the samples shall be grab samples and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent Monitoring Location EFF-001.
3. Test Species – Test species shall be rainbow trout (*Oncorhynchus mykiss*).
4. Methods – The acute toxicity testing samples shall be analyzed using EPA-821-R-02-012, Fifth Edition. Temperature, total residual chlorine, and pH shall be recorded at the time of sample collection. No pH adjustment may be made unless approved by the Executive Officer.
5. Test Failure – If an acute toxicity test does not meet all test acceptability criteria, as specified in the test method, the Discharger must re-sample and re-test as soon as possible, not to exceed 7 days following notification of test failure.

**B. Chronic Toxicity Testing.** The Discharger shall conduct three species chronic toxicity testing to determine whether the effluent is contributing chronic toxicity to the receiving water. The Discharger shall meet the following chronic toxicity testing requirements:

1. Monitoring Frequency – The Discharger shall perform quarterly three species chronic toxicity testing during periods of discharge to Carson Creek. The quarterly monitoring periods shall be defined as the following: December through February; March through May; June through August; and September through November. Chronic toxicity shall not be required more than once per quarter. Chronic toxicity is only required when effluent is discharged to Carson Creek continuously for more than 72 hours during a quarter.
2. Sample Types – Effluent samples shall be flow proportional 24-hour composites and shall be representative of the volume and quality of the discharge. The effluent samples shall be taken at the effluent monitoring location specified in the Monitoring and Reporting Program. The receiving water control shall be a grab sample obtained from Monitoring Location RSW-001, as identified in this Monitoring and Reporting Program.

3. Sample Volumes – Adequate sample volumes shall be collected to provide renewal water to complete the test in the event that the discharge is intermittent.
4. Test Species – Chronic toxicity testing measures sublethal (e.g., reduced growth, reproduction) and/or lethal effects to test organisms exposed to an effluent compared to that of the control organisms. The Discharger shall conduct chronic toxicity tests with:
  - The cladoceran, water flea, *Ceriodaphnia dubia* (survival and reproduction test);
  - The fathead minnow, *Pimephales promelas* (larval survival and growth test); and
  - The green alga, *Selenastrum capricornutum* (growth test).
5. Methods – The presence of chronic toxicity shall be estimated as specified in *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*, EPA/821-R-02-013, October 2002.
6. Reference Toxicant – As required by the SIP, all chronic toxicity tests shall be conducted with concurrent testing with a reference toxicant and shall be reported with the chronic toxicity test results.
7. Dilutions – For regular and accelerated chronic toxicity monitoring, it is not necessary to perform the test using a dilution series. The test may be performed using 100% effluent and two controls. For TRE monitoring, the chronic toxicity testing shall be performed using the dilution series identified in Table E-4, below, unless an alternative dilution series is detailed in the submitted TRE Action Plan. The receiving water control shall be used as the diluent ~~(unless the receiving water is toxic)~~ unless use of an alternative diluent is detailed in the submitted TRE Action Plan, or when the receiving water is toxic.

**Table E-4. Chronic Toxicity Testing Dilution Series**

Sample	Dilutions (%)					Controls	
	100	75	50	25	12.5	Receiving Water	Laboratory Water
% Effluent	100	75	50	25	12.5	0	0
% Receiving Water	0	25	50	75	87.5	100	0
% Laboratory Water	0	0	0	0	0	0	100

8. Test Failure – The Discharger must re-sample and re-test as soon as possible, but no later than fourteen (14) days after receiving notification of a test failure. A test failure is defined as follows:
  - a. The reference toxicant test or the effluent test does not meet all test acceptability criteria as specified in the *Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition*,

EPA/821-R-02-013, October 2002 (Method Manual), and its subsequent amendments or revisions; or

- b. The percent minimum significant difference (PMSD) measured for the test exceeds the upper PMSD bound variability criterion in Table 6 on page 52 of the Method Manual. (A retest is only required in this case if the test results do not exceed the monitoring trigger specified in the Special Provision at section VI. 2.a.iii. of the Order.)

**C. WET Testing Notification Requirements.** The Discharger shall notify the Central Valley Water Board within 24-hours after the receipt of test results exceeding the monitoring trigger during regular or accelerated monitoring, or an exceedance of the acute toxicity effluent limitation.

**D. WET Testing Reporting Requirements.** All toxicity test reports shall include the contracting laboratory's complete report provided to the Discharger and shall be in accordance with the appropriate "Report Preparation and Test Review" sections of the method manuals. At a minimum, whole effluent toxicity monitoring shall be reported as follows:

1. **Chronic WET Reporting.** Regular chronic toxicity monitoring results shall be reported to the Central Valley Water Board within 30 days following completion of the test, and shall contain, at minimum:
  - a. The results expressed in TUC, measured as 100/NOEC, and also measured as 100/LC50, 100/EC25, 100/IC25, and 100/IC50, as appropriate.
  - b. The statistical methods used to calculate endpoints;
  - c. The statistical output page, which includes the calculation of the percent minimum significant difference (PMSD);
  - d. The dates of sample collection and initiation of each toxicity test; and
  - e. The results compared to the numeric toxicity monitoring trigger.

Additionally, the monthly discharger self-monitoring reports shall contain an updated chronology of chronic toxicity test results expressed in TUC, and organized by test species, type of test (survival, growth or reproduction), and monitoring frequency, i.e., either quarterly, monthly, accelerated, or Toxicity Reduction Evaluation (TRE).

2. **Acute WET Reporting.** Acute toxicity test results shall be submitted with the monthly discharger self-monitoring reports and reported as percent survival.
3. **TRE Reporting.** Reports for TREs shall be submitted in accordance with the schedule contained in the Discharger's approved TRE Workplan, or as amended by the Discharger's TRE Action Plan.



- 4. Quality Assurance (QA).** The Discharger must provide the following information for QA purposes:
- a.** Results of the applicable reference toxicant data with the statistical output page giving the species, NOEC, LOEC, type of toxicant, dilution water used, concentrations used, PMSD, and dates tested.
  - b.** The reference toxicant control charts for each endpoint, which include summaries of reference toxicant tests performed by the contracting laboratory.
  - c.** Any information on deviations or problems encountered and how they were dealt with.

## VI. LAND DISCHARGE MONITORING REQUIREMENTS

### A. Monitoring Location RES-001

1. The Discharger shall monitor the storage reservoir at Monitoring Locations RES-001 as follows:

**Table E-5. Land Discharge Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Dissolved Oxygen	mg/L	Grab	1/Month	1
pH	standard units	Grab	1/Month	1
Total Dissolved Solids	mg/L	Grab	1/Year	1
Standard Minerals <sup>2</sup>	mg/L	Grab	1/Year	1
Metals <sup>3</sup>	mg/L	Grab	1/Year	1
Freeboard	feet	Measurement <sup>4</sup>	1/Month	1
Color	--	Observation	1/Month	1
Odor	--	Observation	1/Month	1
Levee Condition	--	Observation	1/Month	1

<sup>1</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

<sup>2</sup> Standard minerals shall include the following: boron, calcium, iron, magnesium, potassium, sodium, chloride, manganese, phosphorus, total alkalinity (including alkalinity series), and hardness, and include verification that the analysis is complete (i.e., cation/anion balance).

<sup>3</sup> Metals shall include the analyses of arsenic, cadmium, chromium, copper, lead, mercury, nickel, and zinc.

<sup>4</sup> Measurement shall be vertically from the water surface to the top of the overflow spillway pipe located in the overflow control structure.

## VII. RECLAMATION MONITORING REQUIREMENTS- NOT APPLICABLE

Reclamation monitoring is covered under a separate Master Reclamation Permit issued to the Discharger in accordance with Title 22 and the California Water Code.

## VIII. RECEIVING WATER MONITORING REQUIREMENTS – SURFACE WATER AND GROUNDWATER

### A. Monitoring Locations RSW-001 and RSW-002

1. The Discharger shall monitor Carson Creek at Monitoring Locations RSW-001 and RSW-002 when discharging to Carson Creek as follows:

**Table E-6. Receiving Water Monitoring Requirements**

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
<b>Conventional Pollutants</b>				
pH	standard units	Grab	1/Week <sup>2</sup>	1,3

Parameter	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
<b>Priority Pollutants</b>				
Priority Pollutants and Other Constituents of Concern <sup>4,5,6,7</sup>	See Att. I	See Att. I	See Att. I	--
<b>Non-Conventional Pollutants</b>				
Dissolved Oxygen	mg/L	Grab	1/Week	1,3
Fecal Coliform Organisms	MPN/100 mL	Grab	1/Month	4
Hardness, Total (as CaCO <sub>3</sub> )	mg/L	Grab	1/Month	1,3
Temperature	°F (°C)	Grab	1/Week <sup>2</sup>	1,3
Turbidity	NTU	Grab	1/Week	1,3

<sup>1</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136.

<sup>2</sup> Temperature and pH shall be determined at the time of effluent ammonia sampling.

<sup>3</sup> A hand-held field meter may be used, provided the meter utilizes a USEPA-approved algorithm/method and is calibrated and maintained in accordance with the manufacturer's instructions. A calibration and maintenance log for each meter used for monitoring required by this Monitoring and Reporting Program shall be maintained at the Facility.

<sup>4</sup> See list of Priority Pollutants and Other Constituents of Concern in Attachment I.

<sup>5</sup> Monitoring required at Monitoring Location RSW-001 only.

<sup>6</sup> Sampling shall be conducted concurrently with effluent monitoring for priority pollutants. See Attachment I for more detailed requirements related to performing priority pollutant monitoring.

<sup>7</sup> Pollutants shall be analyzed using the analytical methods described in 40 CFR Part 136; for priority pollutants the methods must meet the lowest MLs specified in Appendix 4 of the SIP, where no methods are specified for a given pollutant, by methods approved by this Central Valley Water Board or the State Water Board.

2. In conducting the receiving water sampling, a log shall be kept of the receiving water conditions throughout the reach bounded by Monitoring Locations RSW-001 and RSW-002. Attention shall be given to the presence or absence of:

- a. Floating or suspended matter;
- b. Discoloration;
- c. Bottom deposits;
- d. Aquatic life;
- e. Visible films, sheens, or coatings;
- f. Fungi, slimes, or objectionable growths; and
- g. Potential nuisance conditions.

Notes on receiving water conditions shall be summarized in the monitoring report.

## **B. Monitoring Locations GSW-001, GSW-002, and GSW-003**

1. Prior to construction and/or beginning a sampling program of any new groundwater monitoring wells, the Discharger shall submit plans and specifications to the Central Valley Water Board for approval. Once installed, all new wells shall be added to the monitoring network (which currently consists of Monitoring Well Nos. GSW-001, GSW-002, and GSW-003) and shall be sampled and analyzed according to the

schedule below. All samples shall be collected using approved USEPA methods. Water table elevations shall be calculated to determine groundwater gradient and direction of flow.

2. Prior to sampling, the groundwater elevations shall be measured and the wells shall be purged of at least three well volumes until temperature, pH, and electrical conductivity have stabilized. Depth to groundwater shall be measured to the nearest 0.01 feet. Groundwater monitoring at Monitoring Well Nos. GSW-001, GSW-002, GSW-003 and any new groundwater monitoring wells shall include, at a minimum, the following:

**Table E-7. Groundwater Monitoring Requirements**

Parameter <sup>1</sup>	Units	Sample Type	Minimum Sampling Frequency	Required Analytical Test Method
Total Dissolved Solids	mg/L	Grab	1/Year	1
Total Coliform Organisms	MPN/100 mL	Grab	1/Year	1
Nitrate + Nitrite (as N)	mg/L	Grab	1/Year	1

<sup>1</sup> Prior to sampling, the groundwater monitoring wells shall be pumped until the temperature, specific conductivity, and pH have stabilized to ensure representative samples.

## IX. OTHER MONITORING REQUIREMENTS

### A. Biosolids

#### 1. Monitoring Location BIO-001

- a. A composite sample of sludge shall be collected once during the third or fourth year of the permit term at Monitoring Location BIO-001 in accordance with USEPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for priority pollutants listed in 40 CFR Part 122, Appendix D, Tables II and III (excluding total phenols).
- b. A composite sample of sludge shall be collected annually at Monitoring Location BIO-001 in accordance with USEPA's *POTW Sludge Sampling and Analysis Guidance Document*, August 1989, and tested for the metals listed in Title 22.
- c. Sampling records shall be retained for a minimum of **5 years**. A log shall be maintained of sludge quantities generated and of handling and disposal activities. The frequency of entries is discretionary; however, the log must be complete enough to serve as a basis for part of the annual report.

### B. Ultraviolet Light (UV) Disinfection System

#### 1. Monitoring Location UVS-001

The Discharger shall monitor the UV disinfection system at Monitoring Location UVS-001 as follows:

**Table E-8. Ultraviolet Light Disinfection System Monitoring**

Parameter	Units	Sample Type	Minimum Sampling Frequency
Flow	MGD	Meter	Continuous <sup>1</sup>
Turbidity	NTU	Meter <sup>2</sup>	Continuous <sup>1,3</sup>
Number of UV banks in operation	Number	Meter	Continuous <sup>1</sup>
UV Transmittance	Percent (%)	Meter	Continuous <sup>1</sup>
UV Power Setting	Percent (%)	Meter	Continuous <sup>1</sup>
UV Dose <sup>4</sup>	MW-sec/cm <sup>2</sup>	Calculated	Continuous <sup>1</sup>

<sup>1</sup> For continuous analyzers, the Discharger shall report documented routine meter maintenance activities including date, time of day, and duration, in which the analyzer(s) is not in operation.

<sup>2</sup> The turbidity meter shall be stationed immediately after the filters, prior to the UV disinfection process.

<sup>3</sup> Report daily average turbidity and maximum. If the influent exceeds 10 NTU, collect a sample for total coliform organisms and report the duration of the turbidity exceedance.

<sup>4</sup> Report daily minimum UV dose, daily average UV dose, and weekly average UV dose. For the daily minimum UV dose, also report associated number of banks, gallons per minute per lamp, and UV transmittance used in the calculation. If effluent discharge has received less than the minimum UV dose and is not diverted from discharging to Carson Creek, report the duration and dose calculation variables associated with each incident.

## X. REPORTING REQUIREMENTS

### A. General Monitoring and Reporting Requirements

1. The Discharger shall comply with all Standard Provisions (Attachment D) related to monitoring, reporting, and recordkeeping.
2. Upon written request of the Central Valley Water Board, the Discharger shall submit a summary monitoring report. The report shall contain both tabular and graphical summaries of the monitoring data obtained during the previous year(s).
3. **Compliance Time Schedules.** For compliance time schedules included in the Order, the Discharger shall submit to the Central Valley Water Board, on or before each compliance due date, the specified document or a written report detailing compliance or noncompliance with the specific date and task. If noncompliance is reported, the Discharger shall state the reasons for noncompliance and include an estimate of the date when the Discharger will be in compliance. The Discharger shall notify the Central Valley Water Board by letter when it returns to compliance with the compliance time schedule.
4. The Discharger shall report to the Central Valley Water Board any toxic chemical release data it reports to the State Emergency Response Commission within 15 days of reporting the data to the Commission pursuant to section 313 of the "Emergency Planning and Community Right to Know Act" of 1986.

### B. Self Monitoring Reports (SMRs)

1. The Discharger shall continue to submit eSMRs using the State Water Board's CIWQS Program Web site (<http://www.waterboards.ca.gov/ciwqs/index.html>). The Discharger shall maintain sufficient staffing and resources to ensure it submits eSMRs during the effective duration of this Order. This includes provision of training and supervision of individuals (e.g., Discharger personnel or consultant) on how to prepare and submit eSMRs.
2. Monitoring periods and reporting for all required monitoring shall be completed according to the following schedule:

**Table E-9. Monitoring Periods and Reporting Schedule**

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
Continuous	Permit effective date	Continuous	Submit with monthly SMR
1/Day	Permit effective date	(Midnight through 11:59 PM) or any 24-hour period that reasonably represents a calendar day for purposes of sampling.	Submit with monthly SMR
1/Week	Permit effective date	Sunday through Saturday	Submit with monthly SMR

Sampling Frequency	Monitoring Period Begins On...	Monitoring Period	SMR Due Date
1/Month	Permit effective date	First day of calendar month through last day of calendar month	Submit with monthly SMR
<u>Bi-monthly</u>	<u>Permit effective date</u>	<u>1 December through 31 January;</u> <u>1 February through 31 March;</u> <u>1 April through 31 May;</u> <u>1 June through 31 July;</u> <u>1 August through 30 September;</u> <u>1 October through 30 November</u>	<u>Submit with monthly SMR</u>
1/Quarter	Permit effective date	<u>1 January-December through 31-28 (or 29) March-February;</u> <u>1 April-March through 30-June-31 May;</u> <u>1 July-June through 30-September-31 August;</u> <u>1 October-September through 31-December-30 November;</u>	<u>1 May-April;</u> <u>1 August-July;</u> <u>1 November-October;</u> <u>1 February-2 January (of the following year);</u>
1/Year	Permit effective date	1 January through 31 December	1 February (of the following year)

**3. Reporting Protocols.** The Discharger shall report with each sample result the applicable Reporting Level (RL) ~~reported Minimum Level (ML)~~ and the current Method Detection Limit (MDL), as determined by the procedure in 40 CFR Part 136.

The Discharger shall report the results of analytical determinations for the presence of chemical constituents in a sample using the following reporting protocols:

- Sample results greater than or equal to the reported RL ~~ML~~ shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
- Sample results less than the RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.

For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may be shortened to "Est. Conc."). The laboratory may, if such information is available, include numerical estimates of the data quality for the reported result. Numerical estimates of data quality may be percent accuracy (+ a percentage of the reported value), numerical ranges (low to high), or any other means considered appropriate by the laboratory.

- Sample results less than the laboratory's MDL shall be reported as "Not Detected," or ND.
- Dischargers are to instruct laboratories to establish calibration standards so that the ML value (or its equivalent if there is differential treatment of samples relative to calibration standards) is the lowest calibration standard. At no time is the

Discharger to use analytical data derived from extrapolation beyond the lowest point of the calibration curve.

**4. ~~Compliance Determination.~~** ~~Compliance with effluent limitations for priority pollutants shall be determined using sample reporting protocols defined above and in Attachment A of this Order. For purposes of reporting and administrative enforcement by the Central Valley Water Board and the State Water Board, the Discharger shall be deemed out of compliance with effluent limitations if the concentration of the priority pollutant in the monitoring sample is greater than the effluent limitation and greater than or equal to the reporting level (RL).~~

**5.4. Multiple Sample Data.** When determining compliance with an AMEL, AWEL, or MDEL for priority pollutants and more than one sample result is available, the Discharger shall compute the arithmetic mean unless the data set contains one or more reported determinations of “~~Detected, but Not Quantified~~” (DNQ) or “~~Not Detected~~” (ND). In those cases, the Discharger shall compute the median in place of the arithmetic mean in accordance with the following procedure.

- a. The data set shall be ranked from low to high, ranking the reported ND determinations lowest, DNQ determinations next, followed by quantified values (if any). The order of the individual ND or DNQ determinations is unimportant.
- b. The median value of the data set shall be determined. If the data set has an odd number of data points, then the median is the middle value. If the data set has an even number of data points, then the median is the average of the two values around the middle unless one or both of the points are ND or DNQ, in which case the median value shall be the lower of the two data points where DNQ is lower than a value and ND is lower than DNQ.

**6.5. Reporting Requirements.** In reporting the monitoring data, the Discharger shall arrange the data in tabular form so that the date, the constituents, and the concentrations are readily discernible.

- a. The data shall be summarized to clearly illustrate whether the facility is operating in compliance with interim and/or final effluent limitations or with other waste discharge requirements (e.g., discharge specifications, receiving water limitations, special provisions, etc.).
- b. Reports must clearly show when discharging to Discharge Point No. 001 or other permitted discharge locations. Reports must show the date and time that the discharge started and stopped at each location.
- c. The highest daily maximum for the month and monthly and weekly averages shall be determined and recorded as needed to demonstrate compliance.

**7.6. Calculation Requirements.** The following shall be calculated and reported in the SMRs:



- a. **Annual Average Limitations.** For constituents with effluent limitations specified as “annual average” (aluminum) the Discharger shall report the annual average in the December SMR. The annual average shall be calculated as the average of the samples gathered for the calendar year.
- b. **Mass Loading Limitations.** For BOD<sub>5</sub>, TSS, and ammonia, the Discharger shall calculate and report the mass loading (lbs/day) in the SMRs. The mass loading shall be calculated as follows:

$$\text{Mass Loading (lbs/day)} = \text{Flow (MGD)} \times \text{Concentration (mg/L)} \times 8.34$$

When calculating daily mass loading, the daily average flow and constituent concentration shall be used. For weekly average mass loading, the weekly average flow and constituent concentration shall be used. For monthly average mass loading, the monthly average flow and constituent concentration shall be used.

- c. **Removal Efficiency (BOD<sub>5</sub> and TSS).** The Discharger shall calculate and report the percent removal of BOD<sub>5</sub> and TSS in the SMRs. The percent removal shall be calculated as specified in Section VII.A. of the Limitations and Discharge Requirements.
- d. **Total Coliform Organisms Effluent Limitations.** The Discharger shall calculate and report the 7-day median of total coliform organisms for the effluent. The 7-day median of total coliform organisms shall be calculated as specified in Section VII.E. of the Limitations and Discharge Specifications.
- e. **Dissolved Oxygen Receiving Water Limitations.** The Discharger shall calculate and report monthly in the self-monitoring report: i) the dissolved oxygen concentration, ii) the percent of saturation in the main water mass, and iii) the 95th percentile dissolved oxygen concentration.
- f. **Turbidity Receiving Water Limitations.** The Discharger shall calculate and report the turbidity increase in the receiving water applicable to the natural turbidity condition specified in Section V.A.17.a-e. of the Limitations and Discharge Requirements.
- g. **Temperature Receiving Water Limitations.** The Discharger shall calculate and report the temperature increase in the receiving water based on the difference in temperature at Monitoring Locations RSW-001 and RSW-002.

**8.7.** The Discharger shall submit SMRs in accordance with the following requirements:

- a. When electronic submittal of data is required and CIWQS does not provide for entry into a tabular format within the system, the Discharger shall electronically submit the data in a tabular format as an attachment. The Discharger is not

required to duplicate the submittal of data that is entered in a tabular format within CIWQS.

- b.** The Discharger shall attach a cover letter to the SMR. The information contained in the cover letter shall clearly identify violations of the WDRs; discuss corrective actions taken or planned; and the proposed time schedule for corrective actions. Identified violations must include a description of the requirement that was violated and a description of the violation.
- c.** SMRs must be submitted to the Central Valley Water Board, signed and certified as required by the Standard Provisions (Attachment D), to the address listed below:

Regional Water Quality Control Board  
Central Valley Region  
NPDES Compliance and Enforcement Unit  
11020 Sun Center Dr., Suite #200  
Rancho Cordova, CA 95670-6114

### **C. Discharge Monitoring Reports (DMRs)**

- 1.** As described in section X.B.1 above, at any time during the term of this permit, the State Water Board or Central Valley Water Board may notify the Discharger to electronically submit SMRs that will satisfy federal requirements for submittal of DMRs. Until such notification is given, the Discharger shall submit DMRs in accordance with the requirements described below.
- 2.** DMRs must be signed and certified as required by the standard provisions (Attachment D). The Discharger shall submit the original DMR and one copy of the DMR to the address listed below:

<b>STANDARD MAIL</b>	<b>FEDEX/UPS/ OTHER PRIVATE CARRIERS</b>
State Water Resources Control Board Division of Water Quality c/o DMR Processing Center PO Box 100 Sacramento, CA 95812-1000	State Water Resources Control Board Division of Water Quality c/o DMR Processing Center 1001 I Street, 15 <sup>th</sup> Floor Sacramento, CA 95814

3. All discharge monitoring results must be reported on the official USEPA pre-printed DMR forms (EPA Form 3320-1). Forms that are self-generated will not be accepted unless they follow the exact same format of EPA Form 3320-1.
4. Reporting requirements shall be in accordance with due dates specified in this Order. If the due date is on a Saturday, Sunday, state holiday, or a day the corresponding Water Board(s) office(s) is closed, the due date shall be on the next business day.

#### D. Other Reports

1. **Special Study Reports and Progress Reports.** As specified in the Special Provisions contained in section VI.C. of the Order, special study reports and progress reports shall be submitted in accordance with the following reporting requirements.
2. The Discharger shall report the results of any special studies, acute and chronic toxicity testing, and TRE/TIE required by Special Provisions VI.C. of this Order. The Discharger shall submit reports with the first monthly SMR scheduled to be submitted on or immediately following the report due date.
3. Within 60 days of permit adoption, the Discharger shall submit a report outlining minimum-reporting levels, method detection limits, and analytical methods for approval, with a goal to achieve detection levels below applicable water quality criteria. At a minimum, the Discharger shall comply with the monitoring and reporting requirements for CTR constituents as outlined in section 2.3 and 2.4 of the SIP. The maximum required reporting levels for priority pollutant constituents shall be based on the Minimum Levels (MLs) contained in Appendix 4 of the SIP, determined in accordance with Section 2.4.2 and Section 2.4.3 of the SIP. In accordance with Section 2.4.2 of the SIP, when there is more than one ML value for a given substance, the Central Valley Water Board shall include as RLs, in the permit, all ML values, and their associated analytical methods, listed in Appendix 4 that are below the calculated effluent limitation. The Discharger may select any one of those cited analytical methods for compliance determination. If no ML value is below the effluent limitation, then the Discharger shall select as the RL, the lowest ML value, and its associated analytical method, listed in Appendix 4 for inclusion in the permit. Table I-1 (Attachment I) provides required maximum reporting levels in accordance with the SIP.
4. ~~The Discharger's sanitary sewer system collects wastewater using sewers, pipes, pumps, and/or other conveyance systems and directs the raw sewage to the wastewater treatment plant. A "sanitary sewer overflow" is defined as a discharge to ground or surface water from the sanitary sewer system at any point upstream of the wastewater treatment plant. Sanitary sewer overflows are prohibited by this Order. All violations must be reported as required in Standard Provisions. Facilities (such as wet wells, regulated impoundments, tanks, highlines, etc.) may be part of a sanitary sewer system and discharges to these facilities are not considered sanitary~~

~~sewer overflows, provided that the waste is fully contained within these temporary storage facilities.~~

**5.4. Effluent and Receiving Water Characterization Study.** An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal. During the 3<sup>rd</sup> or 4<sup>th</sup> year of this permit term, the Discharger shall conduct monitoring of the effluent at Monitoring Location EFF-001 and of the receiving water at Monitoring Location RSW-001 for all priority pollutants and other constituents of concern as described in Attachment I. The report shall be completed in conformance with the following schedule.

<u>Task</u>	<u>Compliance Date</u>
i. Submit Work Plan and Time Schedule	No later than 2 years 6 months from adoption of this Order
ii. Conduct monitoring in accordance with Attachment I of this Order	During third or fourth year of permit term
iii. Submit Final Report	6 months following completion of final monitoring event

**6.5. Annual Operations Report.** By 30 January of each year, the Discharger shall submit a written report to the Executive Officer containing the following:

- a. The names, certificate grades, and general responsibilities of all persons employed at the Facility.
- b. The names and telephone numbers of persons to contact regarding the plant for emergency and routine situations.
- c. A statement certifying when the flow meter(s) and other monitoring instruments and devices were last calibrated, including identification of who performed the calibration.
- d. A statement certifying whether the current operation and maintenance manual, and contingency plan, reflect the wastewater treatment plant as currently constructed and operated, and the dates when these documents were last revised and last reviewed for adequacy.
- e. The Discharger may also be requested to submit an annual report to the Central Valley Water Board with both tabular and graphical summaries of the monitoring data obtained during the previous year. Any such request shall be made in writing. The report shall discuss the compliance record. If violations have occurred, the report shall also discuss the corrective actions taken and planned to bring the discharge into full compliance with the waste discharge requirements.

**7.6. Annual Pretreatment Reporting Requirements.** The Discharger shall submit annually a report to the Central Valley Water Board, with copies to USEPA Region 9

and the State Water Board, describing the Discharger's pretreatment activities over the previous 12 months. In the event that the Discharger is not in compliance with any conditions or requirements of this Order, including noncompliance with pretreatment audit/compliance inspection requirements, then the Discharger shall also include the reasons for noncompliance and state how and when the Discharger shall comply with such conditions and requirements.

The Discharger may combine annual pretreatment reporting requirements for both the Facility and their Deer Creek Wastewater Treatment Plant (NPDES No. CA0078662). If the reports are combined for both plants, then the Discharger shall note so in its transmittal letter accompanying the submission of the annual report.

An annual report shall be submitted by **28 February** and include at least the following items:

- a. A summary of analytical results from representative, flow proportioned, 24-hour composite sampling of the POTW's influent and effluent for those pollutants USEPA has identified under section 307(a) of the CWA which are known or suspected to be discharged by industrial users.

Sludge shall be sampled during the same 24-hour period and analyzed for the same pollutants as the influent and effluent sampling and analysis. The sludge analyzed shall be a composite sample of a minimum of 12 discrete samples taken at equal time intervals over the 24-hour period. Wastewater and sludge sampling and analysis shall be performed at least annually. The discharger shall also provide any influent, effluent or sludge monitoring data for nonpriority pollutants which may be causing or contributing to Interference, Pass-Through or adversely impacting sludge quality. Sampling and analysis shall be performed in accordance with the techniques prescribed in 40 CFR Part 136 and amendments thereto.

- b. A discussion of Upset, Interference, or Pass-Through incidents, if any, at the treatment plant, which the Discharger knows or suspects were caused by industrial users of the POTW. The discussion shall include the reasons why the incidents occurred, the corrective actions taken and, if known, the name and address of, the industrial user(s) responsible. The discussion shall also include a review of the applicable pollutant limitations to determine whether any additional limitations, or changes to existing requirements, may be necessary to prevent Pass-Through, Interference, or noncompliance with sludge disposal requirements.
- c. The cumulative number of industrial users that the Discharger has notified regarding Baseline Monitoring Reports and the cumulative number of industrial user responses.
- d. An updated list of the Discharger's industrial users including their names and addresses, or a list of deletions and additions keyed to a previously submitted list. The Discharger shall provide a brief explanation for each deletion. The list

shall identify the industrial users subject to federal categorical standards by specifying which set(s) of standards are applicable. The list shall indicate which categorical industries, or specific pollutants from each industry, are subject to local limitations that are more stringent than the federal categorical standards. The Discharger shall also list the noncategorical industrial users that are subject only to local discharge limitations. The Discharger shall characterize the compliance status through the year of record of each industrial user by employing the following descriptions:

- i. complied with baseline monitoring report requirements (where applicable);
- ii. consistently achieved compliance;
- iii. inconsistently achieved compliance;
- iv. significantly violated applicable pretreatment requirements as defined by 40 CFR 403.8(f)(2)(vii);
- v. complied with schedule to achieve compliance (include the date final compliance is required);
- vi. did not achieve compliance and not on a compliance schedule; and
- vii. compliance status unknown.

A report describing the compliance status of each industrial user characterized by the descriptions in items iii through vii above shall be submitted for each calendar quarter **within 21 days of the end of the quarter**. The report shall identify the specific compliance status of each such industrial user and shall also identify the compliance status of the POTW with regards to audit/pretreatment compliance inspection requirements. If none of the aforementioned conditions exist, at a minimum, a letter indicating that all industries are in compliance and no violations or changes to the pretreatment program have occurred during the quarter must be submitted. The information required in the fourth quarter report shall be included as part of the annual report. This quarterly reporting requirement shall commence upon issuance of this Order.

- e. A summary of the inspection and sampling activities conducted by the Discharger during the past year to gather information and data regarding the industrial users. The summary shall include:
  - i. The names and addresses of the industrial users subjected to surveillance and an explanation of whether they were inspected, sampled, or both and the frequency of these activities at each user; and
  - ii. The conclusions or results from the inspection or sampling of each industrial user.

- f.** A summary of the compliance and enforcement activities during the past year. The summary shall include the names and addresses of the industrial users affected by the following actions:
  - i.** Warning letters or notices of violation regarding the industrial users' apparent noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the apparent violation concerned the federal categorical standards or local discharge limitations.
  - ii.** Administrative orders regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
  - iii.** Civil actions regarding the industrial users' noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
  - iv.** Criminal actions regarding the industrial users noncompliance with federal categorical standards or local discharge limitations. For each industrial user, identify whether the violation concerned the federal categorical standards or local discharge limitations.
  - v.** Assessment of monetary penalties. For each industrial user identify the amount of the penalties.
  - vi.** Restriction of flow to the POTW.
  - vii.** Disconnection from discharge to the POTW.
- g.** A description of any significant changes in operating the pretreatment program which differ from the information in the Discharger's approved Pretreatment Program including, but not limited to, changes concerning: the program's administrative structure, local industrial discharge limitations, monitoring program or monitoring frequencies, legal authority or enforcement policy, funding mechanisms, resource requirements, or staffing levels.
- h.** A summary of the annual pretreatment budget, including the cost of pretreatment program functions and equipment purchases.

Duplicate signed copies of these Pretreatment Program reports shall be submitted to the Central Valley Water Board and the:

State Water Resources Control Board  
Division of Water Quality  
1001 I Street or P.O. Box 100  
Sacramento, CA 95812

and the

Regional Administrator  
U.S. Environmental Protection Agency WTR-5  
75 Hawthorne Street  
San Francisco, CA 94105



## ATTACHMENT F – FACT SHEET

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## ATTACHMENT F – FACT SHEET

As described in the Findings in section II of this Order, this Fact Sheet includes the legal requirements and technical rationale that serve as the basis for the requirements of this Order.

This Order has been prepared under a standardized format to accommodate a broad range of discharge requirements for Dischargers in California. Only those sections or subsections of this Order that are specifically identified as “not applicable” have been determined not to apply to this Discharger. Sections or subsections of this Order not specifically identified as “not applicable” are fully applicable to this Discharger.

### I. PERMIT INFORMATION

The following table summarizes administrative information related to the Facility.

**Table F-1. Facility Information**

<b>WDID</b>	5B090102005
<b>Discharger</b>	El Dorado Irrigation District
<b>Name of Facility</b>	El Dorado Hills Wastewater Treatment Plant
<b>Facility Address</b>	4625 Latrobe Road
	El Dorado Hills, CA 95762
	El Dorado County
<b>Facility Contact, Title and Phone</b>	Vickie Caulfield, Operations Division Manager (530) 642-4058
<b>Authorized Person to Sign and Submit Reports</b>	Vickie Caulfield, Operations Division Manager (530) 642-4058
<b>Mailing Address</b>	2890 Mosquito Road, Placerville, CA 95667
<b>Billing Address</b>	Same as mailing address
<b>Type of Facility</b>	Publicly Owned Treatment Works (POTW)
<b>Major or Minor Facility</b>	Major
<b>Threat to Water Quality</b>	1
<b>Complexity</b>	A
<b>Pretreatment Program</b>	Yes
<b>Reclamation Requirements</b>	Producer
<b>Facility Permitted Flow</b>	4.0 million gallons per day (MGD)
<b>Facility Design Flow</b>	4.0 MGD
<b>Watershed</b>	San Joaquin River
<b>Receiving Water</b>	Carson Creek
<b>Receiving Water Type</b>	Inland surface water

- A. The El Dorado Irrigation District (hereinafter Discharger) is the owner and operator of the El Dorado Hills Wastewater Treatment Plant (hereinafter Facility), a POTW.

For the purposes of this Order, references to the “discharger” or “permittee” in applicable federal and state laws, regulations, plans, or policy are held to be equivalent to references to the Discharger herein.

- B.** The Facility discharges wastewater to Carson Creek, a water of the United States, and was regulated by Order R5-2007-0069 which was adopted on 22 June 2007 and expired on 1 June 2012. The terms and conditions of Order R5-2007-0069 were automatically continued and remained in effect until new Waste Discharge Requirements (WDRs) and National Pollutant Discharge Elimination System (NPDES) permit were adopted pursuant to this Order.
- C.** The Discharger filed a report of waste discharge and submitted an application for renewal of its WDRs and NPDES permit on 17 November 2011. A site visit was conducted on 9 February 2012 to observe operations and collect additional data to develop permit limitations and conditions.

## **II. FACILITY DESCRIPTION**

The Discharger provides sewerage service for the community of El Dorado Hills and serves a population of approximately 40,000 through the use of the Facility and the Deer Creek Wastewater Treatment Plant. The Facility has a design average dry weather flow capacity of 4.0 MGD. The Facility produces reclaimed water for reuse in the Discharger's reclaimed water distribution system. When the Facility is not reclaiming wastewater, the Facility discharges to Carson Creek in accordance with this Order. The Facility typically discharges to the receiving water between November and April, and reclaims water between May and October. During the time when the Facility is reclaiming wastewater there are no discharges to the receiving water.

### **A. Description of Wastewater and Biosolids Treatment or Controls**

The treatment system at the Facility consists of a headworks with screening and grit removal, two raw wastewater equalization tanks, two primary clarifiers, two activated sludge basins with nitrification, two biological nutrient removal tanks, two secondary clarifiers, two dissolved air flotation (DAF) basins, six Trident mixed-media (sand and anthracite) tertiary filters, and an ultraviolet light (UV) disinfection system. The Facility also includes two ponds (Ponds 1 and 2), also known as the drain ponds, which are lined with concrete and used for emergency storage of wastewater, storm water, filter backwash water, and filtrate from the belt filter presses. Wastewater in the ponds may be returned to the headworks. Secondary treated wastewater from the secondary clarifiers is discharged to a 82-70 million gallon storage reservoir. Wastewater from the reservoir is treated in the DAFs to remove algae growth and polymer and coagulant are added prior to filtration and disinfection. Tertiary treated wastewater may be recycled in the Discharger's reclaimed water distribution system or discharged from Discharge Point No. 001 to Carson Creek, a tributary to Cosumnes River within the San Joaquin River watershed. The specifications and use of reclaimed water is covered under a separate Master Reclamation Permit issued to the Discharger in accordance with Title 22 and the California Water Code. Sludge is thickened in a DAF, digested in two anaerobic digesters, and dewatered by two belt filter presses.

## B. Discharge Points and Receiving Waters

1. The Facility is located in Section 14, T9N, R8E, MDB&M, as shown in Attachment B, a part of this Order.
2. Treated municipal wastewater is discharged at Discharge Point No. 001 to Carson Creek, a water of the United States and a tributary to the Cosumnes River at a point latitude 38° 38' 18" N and longitude 121° 3' 38" W.

## C. Summary of Existing Requirements and Self-Monitoring Report (SMR) Data

Effluent limitations contained in Order No. R5-2007-0069 for discharges from Discharge Point No. 001 (Monitoring Location EFF-001) and representative monitoring data from the term of Order No. R5-2007-0069 are as follows:

**Table F-2. Historic Effluent Limitations and Monitoring Data**

Parameter	Units	Effluent Limitation			Monitoring Data (September 2007 – January 2012)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Average Dry Weather Flow	MGD	--	--	3.0 <sup>1</sup>	--	--	5.95
		--	--	4.0 <sup>1</sup>			
Electrical Conductivity @ 25°C	µmhos/cm	867 <sup>2</sup>	--	--	560 <sup>3</sup>	--	--
pH	standard units	--	--	6.5 – 8.5	--	--	6.7 – 8.2
Settleable Solids	ml/L	0.1	--	0.2	0.1	--	0.3
Aluminum, Total Recoverable	µg/L	59.0	--	161.0	450	--	450
	lbs/day <sup>4</sup>	1.5	--	4.0	10.3	--	10.3
	lbs/day <sup>5</sup>	2.0	--	5.4		--	
Ammonia (as N)	mg/L	1.1	--	2.14	5.0	--	7.1
	lbs/day <sup>4</sup>	27.5	--	52.5	164	--	237
	lbs/day <sup>5</sup>	36.7	--	70.1		--	
Chlorine, Total Residual	mg/L	--	0.01 <sup>6</sup>	0.02 <sup>7</sup>	--	--	ND <sup>8</sup>
Mercury, Total Recoverable	lbs/month	0.0039 <sup>9</sup>	--	--	NR	--	--
Iron, Total Recoverable	µg/L	300 <sup>10</sup>	--	--	52	--	52
Manganese, Total Recoverable	µg/L	50 <sup>10</sup>	--	50 <sup>10</sup>	33	--	33
	lbs/day <sup>4</sup>	--	--	1.25 <sup>10</sup>	NR	--	NR
	lbs/day <sup>5</sup>	--	--	1.67 <sup>10</sup>			
Bis (2-Chloroethyl) ether	µg/L	--	--	9.95 <sup>11</sup>	<5	--	<5
		0.031 <sup>12</sup>	--	0.062 <sup>12</sup>			
Bis (2-ethylhexyl) phthalate	µg/L	--	--	8.09 <sup>11</sup>	5.6	--	5.6
		1.8 <sup>12</sup>	--	3.6 <sup>12</sup>			

Parameter	Units	Effluent Limitation			Monitoring Data (September 2007 – January 2012)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Carbon Tetrachloride	µg/L	--	--	1.31 <sup>11</sup>	<0.5	--	<0.5
		0.25 <sup>12</sup>	--	0.50 <sup>12</sup>			
Copper, Total Recoverable	µg/L	--	--	23.88 <sup>11</sup>	8.0	--	8.0
		4.62 <sup>12</sup>	--	7.60 <sup>12</sup>			
Cyanide	µg/L	--	--	20.84 <sup>11</sup>	5.6 <sup>8</sup>	--	5.6 <sup>8</sup>
		4.26 <sup>12</sup>	--	8.54 <sup>12</sup>			
Dibromochloromethane	µg/L	--	--	3.28 <sup>11</sup>	1.9 <sup>8</sup>	--	1.9 <sup>8</sup>
		0.41 <sup>12</sup>	--	0.80 <sup>12</sup>			
Dichlorobromomethane	µg/L	--	--	23.95 <sup>11</sup>	13 <sup>8</sup>	--	13 <sup>8</sup>
		0.56 <sup>12</sup>	--	0.93 <sup>12</sup>			
Nitrate Nitrogen, Total (as N)	mg/L	10	--	--	8.3	--	9.5
Persistent Chlorinated Hydrocarbon Pesticides	µg/L	--	--	ND <sup>13</sup>	--	--	--
Total Trihalomethanes (TTHM)	µg/L	--	--	178 <sup>11</sup>	81	--	81
		80 <sup>12</sup>	--	--			
Zinc, Total Recoverable	µg/L	--	--	330 <sup>11</sup>	67.3	--	67.3
		23.9 <sup>12</sup>	--	69.0 <sup>12</sup>			
Acute Toxicity	% Survival	--	--	<sup>14</sup>	--	--	95 <sup>15</sup>
<b>When flow in Carson Creek provides less than a daily average stream flow-to-effluent dilution of 20:1<sup>16</sup>:</b>							
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	10	15	30	6.3	--	9.3
	lbs/day <sup>4</sup>	250	375	750	101	--	228
	lbs/day <sup>5</sup>	334	500	1,000			
	% removal	85	--	--	--	--	--
Total Suspended Solids	mg/L	10	15	30	4.3	--	7.3
	lbs/day <sup>4</sup>	250	375	750	93	--	208
	lbs/day <sup>5</sup>	334	500	1,000			
	% removal	85	--	--	--	--	--
Turbidity	NTU	--	5 <sup>17</sup>	2 <sup>18</sup> /10 <sup>19</sup>	2.3	--	2.6
Total Coliform Organisms	MPN/100 mL	23 <sup>20</sup>	2.2 <sup>21</sup>	240 <sup>19</sup>	<2	--	<2
<b>When flow in Carson Creek provides a daily average stream flow-to-effluent dilution of 20:1<sup>16</sup>:</b>							
Biochemical Oxygen Demand 5-day @ 20°C	mg/L	30	45	60	6.3	--	9.3
	lbs/day <sup>4</sup>	750	1,130	1,500	101	--	228
	lbs/day <sup>5</sup>	1,000	1,500	2,000			
	% removal	85	--	--	--	--	--

Parameter	Units	Effluent Limitation			Monitoring Data (September 2007 – January 2012)		
		Average Monthly	Average Weekly	Maximum Daily	Highest Average Monthly Discharge	Highest Average Weekly Discharge	Highest Daily Discharge
Total Suspended Solids	mg/L	30	45	60	4.3	--	7.3
	lbs/day <sup>4</sup>	750	1,130	1,500	93	--	208
	lbs/day <sup>5</sup>	1,000	1,500	2,000			
	% removal	85	--	--	--	--	--
Total Coliform Organisms	MPN/100 mL	23	--	500	<2	--	<2

- <sup>1</sup> The average dry weather flow shall not exceed 3.0 MGD until completion of Facility expansion, whereupon ADWF shall not exceed 4.0 MGD.
- <sup>2</sup> Applied as a maximum average annual effluent limitation.
- <sup>3</sup> Represents the maximum observed calendar year annual average concentration.
- <sup>4</sup> Based on average dry weather flow of 3.0 MGD.
- <sup>5</sup> Based on average dry weather flow of 4.0 MGD.
- <sup>6</sup> Applied as a 4-day average effluent limitation.
- <sup>7</sup> Applied as a 1-hour average effluent limitation.
- <sup>8</sup> Represents monitoring data collected between September 2007 and January 2012. However, the Discharger converted from chlorine disinfection to UV disinfection in May 2010. Monitoring data for chlorine residual was not collected subsequent to the conversion. Dibromochloromethane and dichlorobromomethane were not detected in the effluent based on data collected subsequent to the conversion. The maximum effluent concentrations for total trihalomethanes and cyanide were 0.72 µg/L and 4.3 µg/L, respectively, based on data collected subsequent to the conversion.
- <sup>9</sup> The total monthly mass discharge of total mercury shall not exceed 0.0039 lbs/month.
- <sup>10</sup> Applied as an average annual effluent limitation.
- <sup>11</sup> Interim effluent limitation effective until 17 May 2010.
- <sup>12</sup> Final effluent limitation effective 18 May 2010.
- <sup>13</sup> Detection limits shall be equal to or less than the lowest minimum level published in Appendix 4 of the *Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California* (known as the State Implementation Plan or SIP). For persistent chlorinated hydrocarbon pesticides not listed in Appendix 4, the lowest possible detectable level shall be used with a maximum acceptable detection level of 0.05 µg/L. Persistent chlorinated hydrocarbon pesticides include, but are not limited to aldrin, alpha BHC, beta BHC, delta BHC, lindane (gamma BHC), captan, 2,4-D, 2,4-DB, 2,4-D Compounds, 4,4'-DDD, 4,4'-DDE, 4,4'-DDT chlordane, dalapon, dicamba, dichloran, dichloroprop, dieldrin, dinoseb, endrin, endrin aldehyde, alpha endosulfan, beta endosulfan, endosulfan sulfate, heptachlor, heptachlor epoxide, hexachlorobenzene, isodrin (an isomer of aldrin), kepone (chlordecone), MCPA, MCPP, methoxychlor, mirex, PCNB (pentachloronitrobenzene), perthane, strobane, 2,4,5-T, 2,4,5-TP (silvex), 2,4,5-T compounds, and toxaphene.
- <sup>14</sup> Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:  
Minimum for any one bioassay: 70%  
Median for any three or more consecutive bioassays: 90%
- <sup>15</sup> Represents the minimum reported value.
- <sup>16</sup> Monitoring data reported represents monitoring conducted under all receiving water flow conditions.
- <sup>17</sup> Not to be exceeded more than 5 percent of the time within a 24-hour period.
- <sup>18</sup> Applied as a daily average effluent limitation.
- <sup>19</sup> Not to be exceeded at any time.
- <sup>20</sup> Not to be exceeded more than once in any 30-day period.
- <sup>21</sup> Applied as a 7-day median effluent limitation.

## **D. Compliance Summary**

1. The Central Valley Water Board issued Administrative Civil Liability (ACL) Complaint No. R5-2011-0500 on 7 January 2011 which proposed to assess an administrative civil liability of \$3,000 against the Discharger for one effluent limitation violation for alpha-BHC from 1 August 2009 to 30 September 2010. The Discharger paid the mandatory minimum penalty of \$3,000.
2. The Central Valley Water Board issued ACL Complaint No. R5-2009-0572 on 10 November 2009 which proposed to assess an administrative civil liability of \$30,000 against the Discharger for ten effluent limitation violations for ammonia from 1 January 2000 to 31 July 2009. The Discharger paid the mandatory minimum penalty of \$30,000.

## **E. Planned Changes – Not Applicable**

## **III. APPLICABLE PLANS, POLICIES, AND REGULATIONS**

The requirements contained in this Order are based on the applicable plans, policies, and regulations identified in the Findings in section II of this Order. The applicable plans, policies, and regulations relevant to the discharge include the following:

### **A. Legal Authorities**

This Order is issued pursuant to regulations in the Clean Water Act (CWA) and the California Water Code (Water Code) as specified in the Finding contained at section II.C of this Order.

### **B. California Environmental Quality Act (CEQA)**

This Order meets the requirements of CEQA as specified in the Finding contained at section II.E of this Order.

### **C. State and Federal Regulations, Policies, and Plans**

1. **Water Quality Control Plans.** This Order implements the following water quality control plans as specified in the Finding contained at section II.H of this Order.
  - a. *Water Quality Control Plan, Fourth Edition (Revised October 2011), for the Sacramento and San Joaquin River Basins*
2. **National Toxics Rule (NTR) and California Toxics Rule (CTR).** This Order implements the NTR and CTR as specified in the Finding contained at section II.I of this Order.
3. **State Implementation Policy (SIP).** This Order implements the SIP as specified in the Finding contained at section II.J of this Order.



4. **Alaska Rule.** This Order is consistent with the Alaska Rule as specified in the Finding contained at section II.L of this Order.
5. **Antidegradation Policy.** As specified in the Finding contained at section II.N of this Order and as discussed in detail in the Fact Sheet (Attachment F, Section IV.D.4.), the discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Resources Control Board (State Water Board) Resolution 68-16.
6. **Anti-Backsliding Requirements.** This Order is consistent with anti-backsliding policies as specified in the Finding contained at section II.O of this Order. Compliance with the anti-backsliding requirements is discussed in the Fact Sheet (Attachment F, Section IV.D.3).
7. **Emergency Planning and Community Right to Know Act**

*Section 13263.6(a) of the Water Code, requires that “the Regional Water Board shall prescribe effluent limitations as part of the waste discharge requirements of a POTW for all substances that the most recent toxic chemical release data reported to the state emergency response commission pursuant to Section 313 of the Emergency Planning and Community Right to Know Act of 1986 (42 U.S.C. Sec. 11023) (EPCRA) indicate as discharged into the POTW, for which the State Water Board or the Regional Water Board has established numeric water quality objectives, and has determined that the discharge is or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to, an excursion above any numeric water quality objective”.*

The most recent toxic chemical data report does not indicate any reportable off-site releases or discharges to the collection system for this Facility. Therefore, a reasonable potential analysis based on information from EPCRA cannot be conducted. Based on information from EPCRA, there is no reasonable potential to cause or contribute to an excursion above any numeric water quality objectives included within the Basin Plan or in any State Water Board plan, so no effluent limitations are included in this permit pursuant to Water Code section 13263.6(a).

However, as detailed elsewhere in this Order, available effluent data indicate that there are constituents present in the effluent that have a reasonable potential to cause or contribute to exceedances of water quality standards and require inclusion of effluent limitations based on federal and state laws and regulations.

## 8. Storm Water Requirements

USEPA promulgated federal regulations for storm water on 16 November 1990 in 40 CFR Parts 122, 123, and 124. The NPDES Industrial Storm Water Program regulates storm water discharges from wastewater treatment facilities. Wastewater treatment plants are applicable industries under the storm water program and are obligated to comply with the federal regulations. The Discharger has submitted a Notice of Intent and been approved for coverage under the State Water Board's

Industrial Stormwater General Order. Therefore, this Order does not regulate storm water.

#### **D. Impaired Water Bodies on CWA 303(d) List**

1. Under section 303(d) of the 1972 CWA, states, territories and authorized tribes are required to develop lists of water quality limited segments. The waters on these lists do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology. On 12 November 2010 USEPA gave final approval to California's 2010 section 303(d) List of Water Quality Limited Segments. The Basin Plan references this list of Water Quality Limited Segments (WQLSs), which are defined as “...*those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR Part 130, et seq.)*.” The Basin Plan also states, “*Additional treatment beyond minimum federal standards will be imposed on dischargers to [WQLSs]. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be met in the segment.*” The listing for the Carson Creek includes aluminum and manganese.
2. **Total Maximum Daily Loads (TMDLs).** USEPA requires the Central Valley Water Board to develop TMDLs for each 303(d) listed pollutant and water body combination. No TMDLs have been adopted for Carson Creek.
3. The 303(d) listings and TMDLs have been considered in the development of the Order. A pollutant-by-pollutant evaluation of each pollutant of concern is described in section VI.C.3. of this Fact Sheet.

#### **E. Other Plans, Policies and Regulations**

1. **Title 27, California Code of Regulations (CCR), section 20005 et seq. (hereafter Title 27)** Some discharges of wastewater to land are exempt from the requirements of Title 27, CCR, based on section 20090 et seq. Title 27 CCR section 200090(a) contains an exemption for discharges of wastewater to land from treatment or storage facilities associated with municipal wastewater treatment plants. The Facility contains an unlined 82-70 million gallon storage reservoir and two lined drain ponds (Ponds 1 and 2).
  - a. **82-70 Million Gallon Storage Reservoir.** The 82-70 million gallon storage reservoir is not lined and is used for storage of secondary treated wastewater prior to tertiary treatment and reclamation in the Discharger's reclaimed water distribution system. Therefore, the 82-70 million gallon storage reservoir is a necessary part of the Facility's wastewater treatment system and is exempt from the requirements of Title 27, pursuant to Title 27 CCR section 20090(a).
  - b. **Drain Ponds 1 and 2.** Ponds 1 and 2 are lined with concrete and are used for emergency storage of wastewater, storm water, filter backwash water, and filtrate

from the belt filter presses. Wastewater in the ponds is returned to the headworks. Therefore, Ponds 1 and 2 are necessary parts of the Facility's wastewater treatment system and are exempt from the requirements of Title 27, pursuant to Title 27 CCR section 20090(a).

#### IV. RATIONALE FOR EFFLUENT LIMITATIONS AND DISCHARGE SPECIFICATIONS

Effluent limitations and toxic and pretreatment effluent standards established pursuant to sections 301 (Effluent Limitations), 302 (Water Quality Related Effluent Limitations), 304 (Information and Guidelines), and 307 (Toxic and Pretreatment Effluent Standards) of the CWA and amendments thereto are applicable to the discharge.

The CWA mandates the implementation of effluent limitations that are as stringent as necessary to meet water quality standards established pursuant to state or federal law [33 U.S.C., §1311(b)(1)(C); 40 CFR 122.44(d)(1)]. NPDES permits must incorporate discharge limits necessary to ensure that water quality standards are met. This requirement applies to narrative criteria as well as to criteria specifying maximum amounts of particular pollutants. Pursuant to federal regulations, 40 CFR 122.44(d)(1)(i), NPDES permits must contain limits that control all pollutants that *"are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any state water quality standard, including state narrative criteria for water quality."* Federal regulations, 40 CFR 122.44(d)(1)(vi), further provide that *"[w]here a state has not established a water quality criterion for a specific chemical pollutant that is present in an effluent at a concentration that causes, has the reasonable potential to cause, or contributes to an excursion above a narrative criterion within an applicable State water quality standard, the permitting authority must establish effluent limits."*

The CWA requires point source dischargers to control the amount of conventional, non-conventional, and toxic pollutants that are discharged into the waters of the United States. The control of pollutants discharged is established through effluent limitations and other requirements in NPDES permits. There are two principal bases for effluent limitations in the Code of Federal Regulations: 40 CFR 122.44(a) requires that permits include applicable technology-based limitations and standards; and 40 CFR 122.44(d) requires that permits include WQBELs to attain and maintain applicable numeric and narrative water quality criteria to protect the beneficial uses of the receiving water where numeric water quality objectives have not been established. The Basin Plan at page IV-17.00, contains an implementation policy, *"Policy for Application of Water Quality Objectives"*, that specifies that the Central Valley Water Board *"will, on a case-by-case basis, adopt numerical limitations in orders which will implement the narrative objectives."* This Policy complies with 40 CFR 122.44(d)(1). With respect to narrative objectives, the Central Valley Water Board must establish effluent limitations using one or more of three specified sources, including: (1) USEPA's published water quality criteria, (2) a proposed state criterion (i.e., water quality objective) or an explicit state policy interpreting its narrative water quality criteria (i.e., the Central Valley Water Board's *"Policy for Application of Water Quality Objectives"*)(40 CFR 122.44(d)(1)(vi)(A), (B) or (C)), or (3) an indicator parameter.

The Basin Plan includes numeric site-specific water quality objectives and narrative objectives for toxicity, chemical constituents, discoloration, radionuclides, and tastes and

odors. The narrative toxicity objective states: “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at III-8.00) The Basin Plan states that material and relevant information, including numeric criteria, and recommendations from other agencies and scientific literature will be utilized in evaluating compliance with the narrative toxicity objective. The narrative chemical constituents objective states that waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. At minimum, “*...water designated for use as domestic or municipal supply (MUN) shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs)*” in Title 22 of CCR. The Basin Plan further states that, to protect all beneficial uses, the Central Valley Water Board may apply limits more stringent than MCLs. The narrative tastes and odors objective states: “*Water shall not contain taste- or odor-producing substances in concentrations that impart undesirable tastes or odors to domestic or municipal water supplies or to fish flesh or other edible products of aquatic origin, or that cause nuisance, or otherwise adversely affect beneficial uses.*”

## **A. Discharge Prohibitions**

- 1. Prohibition III.A (No discharge or application of waste other than that described in this Order).** This prohibition is based on Water Code section 13260 that requires filing of a report of waste discharge (ROWD) before discharges can occur. The Discharger submitted a ROWD for the discharges described in this Order; therefore, discharges not described in this Order are prohibited.
- 2. Prohibition III.B (No bypasses or overflow of untreated wastewater, except under the conditions at CFR Part 122.41(m)(4)).** As stated in section I.G of Attachment D, Standard Provisions, this Order prohibits bypass from any portion of the treatment facility. Federal regulations, 40 CFR 122.41(m), define “bypass” as the intentional diversion of waste streams from any portion of a treatment facility. This section of the federal regulations, 40 CFR 122.41(m)(4), prohibits bypass unless it is unavoidable to prevent loss of life, personal injury, or severe property damage. In considering the Central Valley Water Board’s prohibition of bypasses, the State Water Board adopted a precedential decision, Order No. WQO 2002-0015, which cites the federal regulations, 40 CFR 122.41(m), as allowing bypass only for essential maintenance to assure efficient operation.
- 3. Prohibition III.C (No controllable condition shall create a nuisance).** This prohibition is based on Water Code section 13050 that requires water quality objectives established for the prevention of nuisance within a specific area. The Basin Plan prohibits conditions that create a nuisance.
- 4. Prohibition III.D (No inclusion of pollutant free wastewater shall cause improper operation of the Facility’s systems).** This prohibition is based on CFR Part 122.41 et seq. that requires the proper design and operation of treatment facilities.

## **B. Technology-Based Effluent Limitations**

### **1. Scope and Authority**

Section 301(b) of the CWA and implementing USEPA permit regulations at 40 CFR 122.44 require that permits include conditions meeting applicable technology-based requirements at a minimum, and any more stringent effluent limitations necessary to meet applicable water quality standards. The discharge authorized by this Order must meet minimum federal technology-based requirements based on Secondary Treatment Standards at 40 CFR Part 133

Regulations promulgated in 40 CFR 125.3(a)(1) require technology-based effluent limitations for municipal Dischargers to be placed in NPDES permits based on Secondary Treatment Standards or Equivalent to Secondary Treatment Standards.

The Federal Water Pollution Control Act Amendments of 1972 (PL 92-500) established the minimum performance requirements for POTWs [defined in section 304(d)(1)]. Section 301(b)(1)(B) of that Act requires that such treatment works must, as a minimum, meet effluent limitations based on secondary treatment as defined by the USEPA Administrator.

Based on this statutory requirement, USEPA developed secondary treatment regulations, which are specified in 40 CFR Part 133. These technology-based regulations apply to all municipal wastewater treatment plants and identify the minimum level of effluent quality attainable by secondary treatment in terms of 5-day biochemical oxygen demand (BOD<sub>5</sub>), total suspended solids (TSS), and pH.

### **2. Applicable Technology-Based Effluent Limitations**

- a. BOD<sub>5</sub> and TSS.** Federal regulations, 40 CFR Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD<sub>5</sub> and TSS. This Order establishes WQBELs that are more stringent than the secondary technology-based treatment described in 40 CFR Part 133 and are necessary to protect the beneficial uses of the receiving stream. (See section IV.C.3.d.iv of this Fact Sheet for the discussion on WQBELs for BOD<sub>5</sub> and TSS.) In addition, 40 CFR 133.102, in describing the minimum level of effluent quality attainable by secondary treatment, states that the 30-day average percent removal shall not be less than 85 percent. If 85 percent removal of BOD<sub>5</sub> and TSS must be achieved by a secondary treatment plant, it must also be achieved by a tertiary (i.e., treatment beyond secondary level) treatment plant. This Order contains a limitation requiring an average of 85 percent removal of BOD<sub>5</sub> and TSS over each calendar month.
- b. Flow.** The Facility was designed to provide a tertiary level of treatment for up to a design flow of 4.0 MGD. Therefore, this Order contains an average dry weather discharge flow effluent limit of 4.0 MGD.

- c. **pH.** The secondary treatment regulations at 40 CFR Part 133 also require that pH be maintained between 6.0 and 9.0 standard units.

**Summary of Technology-based Effluent Limitations  
Discharge Point No. 001**

**Table F-3. Summary of Technology-based Effluent Limitations**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Flow	MGD	--	--	4.0	--	--
Biochemical Oxygen Demand (5-day @ 20°C) <sup>1</sup>	mg/L	30	45	--	--	--
	lbs/day <sup>2</sup>	1,000	1,500	--	--	--
	% Removal	85	--	--	--	--
pH <sup>1</sup>	standard units	--	--	--	6.0	9.0
Total Suspended Solids <sup>1</sup>	mg/L	30	45	--	--	--
	lbs/day <sup>2</sup>	1,000	1,500	--	--	--
	% Removal	85	--	--	--	--

<sup>1</sup> Note that more stringent water quality-based effluent limitations (WQBELs) for BOD<sub>5</sub>, pH, and TSS are applicable and are established as final effluent limitations in this Order (see section IV.C.3.d. of this Fact Sheet).

<sup>2</sup> Based on a design average dry weather flow of 4.0 MGD.

**C. Water Quality-Based Effluent Limitations (WQBELs)**

**1. Scope and Authority**

Section 301(b) of the CWA and 40 CFR 122.44(d) require that permits include limitations more stringent than applicable federal technology-based requirements where necessary to achieve applicable water quality standards. This Order contains requirements, expressed as a technology equivalence requirement, more stringent than secondary treatment requirements that are necessary to meet applicable water quality standards. The rationale for these requirements, which consists of tertiary treatment, is discussed in section IV.C.3.d.vii. of this Fact Sheet.

40 CFR 122.44(d)(1)(i) mandates that permits include effluent limitations for all pollutants that are or may be discharged at levels that have the reasonable potential to cause or contribute to an exceedance of a water quality standard, including numeric and narrative objectives within a standard. Where reasonable potential has been established for a pollutant, but there is no numeric criterion or objective for the pollutant, WQBELs must be established using: (1) USEPA criteria guidance under CWA section 304(a), supplemented where necessary by other relevant information; (2) an indicator parameter for the pollutant of concern; or (3) a calculated numeric water quality criterion, such as a proposed state criterion or policy interpreting the state's narrative criterion, supplemented with other relevant information, as provided in 40 CFR 122.44(d)(1)(vi).

The process for determining reasonable potential and calculating WQBELs when necessary is intended to protect the designated uses of the receiving water as specified in the Basin Plan, and achieve applicable water quality objectives and criteria that are contained in other state plans and policies, or any applicable water quality criteria contained in the CTR and NTR.

## **2. Applicable Beneficial Uses and Water Quality Criteria and Objectives**

The Basin Plan designates beneficial uses, establishes water quality objectives, and contains implementation programs and policies to achieve those objectives for all waters addressed through the plan. In addition, the Basin Plan implements State Water Board Resolution No. 88-63, which established state policy that all waters, with certain exceptions, should be considered suitable or potentially suitable for municipal or domestic supply.

The Basin Plan on page II-1.00 states: “*Protection and enhancement of existing and potential beneficial uses are primary goals of water quality planning...*” and with respect to disposal of wastewaters states that “*...disposal of wastewaters is [not] a prohibited use of waters of the State; it is merely a use which cannot be satisfied to the detriment of beneficial uses.*”

The federal CWA section 101(a)(2), states: “*it is the national goal that wherever attainable, an interim goal of water quality which provides for the protection and propagation of fish, shellfish, and wildlife, and for recreation in and on the water be achieved by July 1, 1983.*” Federal Regulations, developed to implement the requirements of the CWA, create a rebuttable presumption that all waters be designated as fishable and swimmable. Federal Regulations, 40 CFR sections 131.2 and 131.10, require that all waters of the State regulated to protect the beneficial uses of public water supply, protection and propagation of fish, shell fish and wildlife, recreation in and on the water, agricultural, industrial and other purposes including navigation. Section 131.3(e), 40 CFR, defines existing beneficial uses as those uses actually attained after 28 November 1975, whether or not they are included in the water quality standards. Federal Regulation, 40 CFR section 131.10 requires that uses be obtained by implementing effluent limitations, requires that all downstream uses be protected and states that in no case shall a state adopt waste transport or waste assimilation as a beneficial use for any waters of the United States.

- a. Receiving Water and Beneficial Uses.** The Basin Plan at II-2.00 states that the beneficial uses of any specifically identified water body generally apply to its tributary streams. The Basin Plan in Table II-1, Section II, does not specifically identify beneficial uses for Carson Creek, but does identify present and potential uses for Cosumnes River, to which Carson Creek, via Deer Creek, is tributary. Thus, beneficial uses applicable to Carson Creek are as follows:

**Table F-4. Basin Plan Beneficial Uses**

Discharge Point	Receiving Water Name	Beneficial Use(s)
001	Carson Creek	<u>Existing uses from Table II-1 of the Basin Plan:</u> Municipal and domestic supply (MUN); Agricultural supply, including irrigation and stock watering (AGR); Water contact recreation, including canoeing and rafting (REC-1); Non-contact water recreation (REC-2); Warm freshwater habitat (WARM); Cold freshwater habitat (COLD); Migration of aquatic organisms, warm and cold (MIGR); Spawning, reproduction, and/or early development, warm and cold (SPWN); Wildlife habitat (WILD). <u>Suitable uses from State Water Board Resolution No.88-63.</u> Municipal and domestic supply (MUN).
--	Groundwater	Municipal and domestic supply (MUN); Industrial service supply (IND); Industrial process supply (PROC); Agricultural supply, including irrigation and stock watering (AGR).

- b. Effluent and Ambient Background Data.** The reasonable potential analysis (RPA), as described in section IV.C.3 of this Fact Sheet, was based on data from September 2007 through January 2012, which includes effluent and ambient background data submitted in SMRs and annual priority pollutant scans. Because the Discharger converted from chlorine disinfection to UV disinfection in May 2010, the RPA for chlorine disinfection by-products, cyanide, and salinity was conducted based on data collected after May 2010.
- c. Assimilative Capacity/Mixing Zone.** The Central Valley Water Board finds that based on the available information and on the Discharger's application, that Carson Creek, absent the discharge, is an ephemeral stream. The ephemeral nature of Carson Creek means that the designated beneficial uses must be protected, but that no credit for receiving water dilution is available. Although the discharge, at times, maintains the aquatic habitat, constituents may not be discharged that may cause harm to aquatic life. At other times, natural flows within Carson Creek help support the aquatic life. Both conditions may exist within a short time span, where Carson Creek would be dry without the discharge and periods when sufficient background flows provide hydraulic continuity with Deer Creek and the Cosumnes River. Dry conditions occur primarily in the summer months, but dry conditions may also occur throughout the year, particularly in low rainfall years. Significant dilution may occur during and immediately following high rainfall events. The lack of dilution results in more stringent effluent limitations to protect contact recreational uses, drinking water standards, agricultural water quality goals and aquatic life.



- d. **Conversion Factors.** The CTR contains aquatic life criteria for arsenic, cadmium, chromium III, chromium VI, copper, lead, nickel, silver, and zinc which are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. The default USEPA conversion factors contained in Appendix 3 of the SIP were used to convert the applicable dissolved criteria to total recoverable criteria.
- e. **Hardness-Dependent CTR Metals Criteria.** The *California Toxics Rule* and the *National Toxics Rule* contain water quality criteria for seven metals that vary as a function of hardness. The lower the hardness the lower the water quality criteria. The metals with hardness-dependent criteria include cadmium, copper, chromium III, lead, nickel, silver, and zinc.

This Order has established the criteria for hardness-dependent metals based on the reasonable worst-case ambient hardness as required by the SIP<sup>1</sup>, the CTR<sup>2</sup> and State Water Board Order No. WQO 2008-0008 (City of Davis). The SIP and the CTR require the use of “receiving water” or “actual ambient” hardness, respectively, to determine effluent limitations for these metals. (SIP, § 1.2; 40 CFR § 131.38(c)(4)) The CTR does not define whether the term “ambient,” as applied in the regulations, necessarily requires the consideration of upstream as opposed to downstream hardness conditions. Therefore, where reliable, representative data are available, the hardness value for calculating criteria can be the downstream receiving water hardness, after mixing with the effluent (Order WQO 2008-0008, p. 11). The Central Valley Water Board thus has considerable discretion in determining ambient hardness (Id., p.10).

As discussed below, scientific literature provides a reliable method for calculating protective hardness-dependent CTR criteria, considering all discharge conditions. This methodology produces hardness-dependent CTR criteria based on the reasonable worst-case downstream ambient hardness that ensure these metals do not cause receiving water toxicity under any downstream receiving water condition. Under this methodology, the Central Valley Water Board considers all hardness conditions that could occur in the ambient downstream receiving water after the effluent has mixed with the water body<sup>3</sup>. This ensures that effluent limitations are fully protective of aquatic life in all areas of the receiving water affected by the discharge under all flow conditions, at the fully mixed location, and throughout the water body including at the point of discharge into the water body.

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<sup>1</sup> The SIP does not address how to determine the hardness for application to the equations for the protection of aquatic life when using hardness-dependent metals criteria. It simply states, in Section 1.2, that the criteria shall be properly adjusted for hardness using the hardness of the receiving water.

<sup>2</sup> The CTR requires that, for waters with a hardness of 400 mg/L (as CaCO<sub>3</sub>), or less, the actual ambient hardness of the surface water must be used. It further requires that the hardness values used must be consistent with the design discharge conditions for design flows and mixing zones.

<sup>3</sup> All effluent discharges will change the ambient downstream metals concentration and hardness. It is not possible to change the metals concentration without also changing the hardness.

- i. **Conducting the Reasonable Potential Analysis (RPA).** The SIP in Section 1.3 states, “*The RWQCB shall...determine whether a discharge may: (1) cause, (2) have a reasonable potential to cause, or (3) contribute to an excursion above any applicable priority pollutant criterion or objective.*” Section 1.3 provides a step-by-step procedure for conducting the RPA. The procedure requires the comparison of the maximum effluent concentration (MEC) and maximum ambient background concentration to the applicable criterion that has been properly adjusted for hardness. Unless otherwise noted, for the hardness-dependent CTR metals criteria the following procedures were followed for properly adjusting the criterion for hardness when conducting the RPA.
- (a) The SIP requires WQBELs if the MEC of the applicable and representative data set is equal to or exceeds the applicable criterion, adjusted for hardness. For comparing the MEC to the applicable criterion, the “fully mixed” reasonable worst-case downstream ambient hardness was used to adjust the criterion. In this evaluation the portion of the receiving water affected by the discharge is analyzed. For hardness-dependent criteria, the hardness of the effluent has an impact on the determination of the applicable criterion in areas of the receiving water affected by the discharge. Therefore, for comparing the MEC to the applicable criterion, the reasonable worst-case downstream ambient hardness was used to adjust the criterion. For this situation it is necessary to consider the hardness of the effluent in determining the applicable worst-case downstream ambient hardness to adjust the criterion. The procedures for determining the applicable criterion after proper adjustment using the reasonable worst-case downstream ambient hardness is outlined in subsection ii, below.
- (b) The SIP requires WQBELs if the receiving water is impaired upstream (outside the influence) of the discharge, i.e., if the maximum ambient background concentration of a pollutant exceeds the applicable criterion, adjusted for hardness<sup>1</sup>. For comparing the maximum ambient background concentration to the applicable criterion, the reasonable worst-case upstream ambient hardness was used to adjust the criteria. This is appropriate, because this area is outside the influence of the discharge. Since the discharge does not impact the upstream hardness, the effect of the effluent hardness was not included in this evaluation.
- ii. **Calculating WQBELs.** The remaining discussion in this section relates to the development of WQBELs when it has been determined that the discharge has reasonable potential to cause or contribute to an exceedance of the CTR hardness-dependent metals criteria in the receiving water.

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<sup>1</sup> The pollutant must also be detected in the effluent.

A 2006 Study<sup>1</sup> developed procedures for calculating the effluent concentration allowance (ECA)<sup>2</sup> for CTR hardness-dependent metals. The 2006 Study demonstrated that it is necessary to evaluate all discharge conditions (e.g., high and low flow conditions) and the hardness and metals concentrations of the effluent and receiving water when determining the appropriate ECA for these hardness-dependent metals. This method is superior to relying on downstream receiving water samples alone because it captures all possible mixed conditions in the receiving water. Both receiving water and effluent hardness vary based on flow and other factors, but the variability of receiving water and effluent hardness is sometimes independent. Using a calculated hardness value ensures that the Central Valley Water Board considers all possible mixed downstream values that may result from these two independent variables. Relying on receiving water sampling alone is less likely to capture all possible mixed downstream conditions.

The equation describing the total recoverable regulatory criterion, as established in the CTR<sup>3</sup>, is as follows:

$$\text{CTR Criterion} = \text{WER} \times (e^{m[\ln(H)]+b}) \quad (\text{Equation 1})$$

Where:

H = hardness (as  $\text{CaCO}_3$ )<sup>4</sup>

WER = water-effect ratio

m, b = metal- and criterion-specific constants

In accordance with the CTR, the default value for the WER is 1. A WER study must be conducted to use a value other than 1. The constants “m” and “b” are specific to both the metal under consideration, and the type of total recoverable criterion (i.e., acute or chronic). The metal-specific values for these constants are provided in the CTR at paragraph (b)(2), Table 1.

The equation for the ECA is defined in Section 1.4, Step 2, of the SIP and is as follows:

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<sup>1</sup> Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill.

<sup>2</sup> The ECA is defined in Appendix 1 of the SIP (page Appendix 1-2). The ECA is used to calculate WQBELs in accordance with Section 1.4 of the SIP.

<sup>3</sup> 40 CFR § 131.38(b)(2).

<sup>4</sup> For this discussion, all hardness values are in mg/L as  $\text{CaCO}_3$ .

$$ECA = C \text{ (when } C \leq B)^1 \text{ (Equation 2)}$$

Where:

C = the priority pollutant criterion/objective, adjusted for hardness  
(see Equation 1, above)

B = the ambient background concentration

The 2006 Study demonstrated that the relationship between hardness and the calculated criteria is the same for some metals, so the same procedure for calculating the ECA may be used for these metals. The same procedure can be used for chronic cadmium, chromium III, copper, nickel, and zinc. These metals are hereinafter referred to as “Concave Down Metals”. “Concave Down” refers to the shape of the curve represented by the relationship between hardness and the CTR criteria in Equation 1. Another similar procedure can be used for determining the ECA for acute cadmium, lead, and acute silver, which are referred to hereafter as “Concave Up Metals”.

***ECA for Chronic Cadmium, Chromium III, Copper, Nickel, and Zinc*** – For Concave Down Metals (i.e., chronic cadmium, chromium III, copper, nickel, and zinc) the 2006 Study demonstrates that when the effluent is in compliance with the CTR criteria and the upstream receiving water is in compliance with the CTR criteria, any mixture of the effluent and receiving water will always be in compliance with the CTR criteria<sup>2</sup>. The 2006 Study proves that regardless of whether the effluent hardness is lower or greater than the upstream hardness, the reasonable worst-case flow condition is the effluent dominated condition (i.e., no receiving water flow)<sup>3</sup>. Consequently, for Concave Down Metals, the CTR criteria have been calculated using the downstream ambient hardness under this condition.

The effluent hardness ranged from 63 mg/L to 79 mg/L, based on four samples from December 2008 to March 2011. The upstream receiving water hardness varied from 85 mg/L to 250 mg/L, based on 74 samples from November 2008 to March 2011. Under the effluent dominated condition, the reasonable worst-case downstream ambient hardness is 63 mg/L. As demonstrated in the example shown in Table F-5, below, using this hardness to calculate the ECA for all Concave Down Metals will result in WQBELs that are protective under all flow conditions, from the effluent dominated condition

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<sup>1</sup> The 2006 Study assumes the ambient background metals concentration is equal to the CTR criterion (i.e.,  $C \leq B$ )

<sup>2</sup> 2006 Study, p. 5700

<sup>3</sup> There are two typographical errors in the 2006 Study in the discussion of Concave Down Metals when the effluent hardness is less than the receiving water hardness. The effluent and receiving water hardness were transposed in the discussion, but the correct hardness values were used in the calculations. The typographical errors were confirmed by the author of the 2006 Study, by email dated 1 April 2011, from Dr. Robert Emerick to Mr. James Marshall, Central Valley Water Board.

to high flow condition. This example for copper assumes the following conservative conditions for the upstream receiving water:

- Upstream receiving water always at the lowest observed upstream receiving water hardness (i.e., 85 mg/L)
- Upstream receiving water copper concentration always at the CTR criteria (i.e., no assimilative capacity).

Using these reasonable worst-case receiving water conditions, a simple mass balance (as shown in Equation 3, below) accounts for all possible mixtures of effluent and receiving water under all flow conditions.

$$C_{MIX} = C_{RW} \times (1-EF) + C_{Eff} \times (EF) \quad (\text{Equation 3})$$

Where:

$C_{MIX}$  = Mixed concentration (e.g. metals or hardness)  
 $C_{RW}$  = Upstream receiving water concentration  
 $C_{Eff}$  = Effluent concentration  
EF = Effluent Fraction

In this example, for copper, for any receiving water flow condition (high flow to low flow), the fully-mixed downstream ambient copper concentration is in compliance with the CTR criteria<sup>1</sup>.

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<sup>1</sup> This method considers the actual lowest observed upstream hardness and actual lowest observed effluent hardness to determine the reasonable worst-case ambient downstream hardness under all possible receiving water flow conditions. Table F-5 demonstrates that the receiving water is always in compliance with the CTR criteria at the fully-mixed location in the receiving water. It also demonstrates that the receiving water is in compliance with the CTR criteria for all mixtures from the point of discharge to the fully-mixed location. Therefore, a mixing zone is not used for compliance.

**Table F-5. Copper ECA Evaluation**

Lowest Observed Effluent Hardness		63 mg/L (as CaCO <sub>3</sub> )			
Lowest Observed Upstream Receiving Water Hardness		85 mg/L (as CaCO <sub>3</sub> )			
Highest Assumed Upstream Receiving Water Copper Concentration		8.1 µg/L <sup>1</sup>			
Copper ECA <sub>chronic</sub> <sup>2</sup>		6.3 µg/L			
Effluent Fraction <sup>6</sup>		Fully Mixed Downstream Ambient Concentration			
		Hardness <sup>3</sup> (mg/L)	CTR Criteria <sup>4</sup> (µg/L)	Copper <sup>5</sup> (µg/L)	Complies with CTR Criteria
<div style="display: flex; align-items: center;"> <div style="writing-mode: vertical-rl; transform: rotate(180deg); margin-right: 5px;">High Flow</div> <div style="margin-right: 5px;">↓</div> <div style="writing-mode: vertical-rl; transform: rotate(180deg); margin-right: 5px;">Low Flow</div> </div>	1%	85	8.1	8.1	Yes
	5%	84	8.0	8.0	Yes
	15%	82	7.8	7.8	Yes
	25%	80	7.7	7.7	Yes
	50%	74	7.2	7.2	Yes
	75%	69	6.8	6.7	Yes
	100%	63	6.3	6.3	Yes

<sup>1</sup> Highest assumed upstream receiving water copper concentration calculated using Equation 1 for chronic criterion at a hardness of 63 mg/L.

<sup>2</sup> ECA calculated using Equation 1 for chronic criterion at a hardness of 85 mg/L.

<sup>3</sup> Fully mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction using Equation 3.

<sup>4</sup> Fully mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.

<sup>5</sup> Fully mixed downstream ambient copper concentration is the mixture of the receiving water and effluent copper concentrations at the applicable effluent fraction using Equation 3.

<sup>6</sup> The effluent fraction ranges from 1% at the high receiving water flow condition, to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

**ECA for Acute Cadmium, Lead, and Acute Silver** – For Concave Up Metals (i.e., acute cadmium, lead, and acute silver), the relationship between hardness and the metals criteria is different than for Concave Down Metals. The 2006 Study demonstrates that for Concave Up Metals, the effluent and upstream receiving water can be in compliance with the CTR criteria, but the resulting mixture may contain metals concentrations that exceed the CTR criteria and could cause toxicity. For these metals, the 2006 Study provides a mathematical approach to calculate the ECA that is protective of aquatic life, in all areas of the receiving water affected by the discharge, under all discharge and receiving water flow conditions (see Equation 4, below).

The ECA, as calculated using Equation 4, is based on the reasonable worst-case upstream receiving water hardness, the lowest observed effluent hardness, and assuming no receiving water assimilative capacity for metals (i.e., ambient background metals concentrations are at their respective CTR criterion). Equation 4 is not used in place of the CTR equation (Equation 1). Rather, Equation 4, which is derived using the CTR equation, is used as a direct approach for calculating the ECA. This replaces an iterative approach for calculating the ECA. The CTR equation has been used to evaluate the receiving water downstream of the discharge at all discharge and flow conditions to ensure the ECA is protective (e.g., see Table F-6).

$$ECA = \left( \frac{m(H_e - H_{rw}) \left( e^{m \ln(H_{rw}) + b} \right)}{H_{rw}} \right) + e^{m \ln(H_{rw}) + b} \quad (\text{Equation 4})$$

Where:

- m, b = criterion specific constants (from CTR)
- H<sub>e</sub> = lowest observed effluent hardness
- H<sub>rw</sub> = reasonable worst-case upstream receiving water hardness

An example similar to the Concave Down Metals is shown for lead, a Concave Up Metal, in Table F-6, below. As previously mentioned, the lowest effluent hardness is 63 mg/L, while the upstream receiving water hardness ranged from 85 mg/L to 250 mg/L. In this case, the reasonable worst-case upstream receiving water hardness to use in Equation 4 to calculate the ECA is 250 mg/L.

In this case for lead, the lowest possible fully-mixed downstream hardness is 63 mg/L (see last row of Table F-6), which corresponds to a total recoverable chronic ECA of 1.8 µg/L, using Equations 1 and 2. However, a lower chronic ECA is required to ensure the discharge does not cause toxicity at any location in the receiving water, at or downstream of the discharge, which would be a violation the Basin Plan's narrative toxicity objective<sup>1</sup>. This is because for concave up metals, mixing two waters with different hardness with metals concentrations at their respective CTR criteria will always result in CTR criterion exceedances<sup>2</sup>. As shown in Table F-6, a chronic ECA of 0.49 µg/L is necessary to be protective under all discharge conditions. In this example for lead, for any receiving water flow condition (high flow to low flow), the fully-mixed downstream ambient lead concentration is in compliance with the CTR criteria.

Using the procedures discussed above to calculate the ECA for all Concave Up Metals will result in WQBELs that are protective under all potential effluent/receiving water flow conditions (high flow to low flow) and under all known hardness conditions, as demonstrated in Table F-6, for lead.

<sup>1</sup> "All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life." (Basin Plan, p. III-8.01.)

<sup>2</sup> Emerick, R.W.; Borroum, Y.; & Pedri, J.E., 2006. California and National Toxics Rule Implementation and Development of Protective Hardness Based Metal Effluent Limitations. WEFTEC, Chicago, Ill. (p. 5702)

**Table F-6. Lead ECA Evaluation**

		Lowest Observed Effluent Hardness			63 mg/L
		Reasonable Worst-case Upstream Receiving Water Hardness			250 mg/L
		Reasonable Worst-case Upstream Receiving Water Lead Concentration			2.6 µg/L <sup>1</sup>
		Lead ECA <sub>chronic</sub> <sup>2</sup>			0.49 µg/L
Effluent Fraction <sup>6</sup>		Fully Mixed Downstream Ambient Concentration			
		Hardness <sup>3</sup> (mg/L) (as CaCO <sub>3</sub> )	CTR Criteria <sup>4</sup> (µg/L)	Lead <sup>5</sup> (µg/L)	Complies with CTR Criteria
<div>High Flow</div> <div>↓</div> <div>Low Flow</div>	1%	248	10	10	Yes
	5%	241	9.7	9.7	Yes
	15%	222	8.8	8.8	Yes
	25%	203	7.8	7.8	Yes
	50%	157	5.6	5.4	Yes
	75%	110	3.6	2.9	Yes
	100%	63	1.8	0.49	Yes

<sup>1</sup> Reasonable worst-case upstream receiving water lead concentration calculated using Equation 1 for chronic criterion at a hardness of 85 mg/L.

<sup>2</sup> ECA calculated using Equation 4 for chronic criteria.

<sup>3</sup> Fully mixed downstream ambient hardness is the mixture of the receiving water and effluent hardness at the applicable effluent fraction.

<sup>4</sup> Fully mixed downstream ambient criteria are the chronic criteria calculated using Equation 1 at the mixed hardness.

<sup>5</sup> Fully mixed downstream ambient lead concentration is the mixture of the receiving water and effluent lead concentrations at the applicable effluent fraction.

<sup>6</sup> The effluent fraction ranges from 1% at the high receiving water flow condition, to 100% at the lowest receiving water flow condition (i.e., effluent dominated).

Based on the procedures discussed above, Table F-7 lists all the CTR hardness-dependent metals and the associated ECA used in this Order.

**Table F-7. Summary of ECA Evaluations for CTR Hardness-dependent Metals**

<b>CTR Metals</b>	<b>ECA (µg/L, total recoverable)</b>	
	<b>acute</b>	<b>chronic</b>
Copper	9.1	6.3
Chromium III	1,189	142
Cadmium	2.0	1.7
Lead	13	0.49
Nickel	317	35
Silver	1.7	--
Zinc	81	81

### 3. Determining the Need for WQBELs

- a. The Central Valley Water Board conducted the RPA in accordance with section 1.3 of the SIP. Although the SIP applies directly to the control of CTR priority pollutants, the State Water Board has held that the Regional Water Boards may use the SIP as guidance for water quality-based toxics control.<sup>1</sup> The SIP states

<sup>1</sup> See Order WQO 2001-16 (Napa) and Order WQO 2004-0013 (Yuba City).



in the introduction “*The goal of this Policy is to establish a standardized approach for permitting discharges of toxic pollutants to non-ocean surface waters in a manner that promotes statewide consistency.*” Therefore, unless otherwise specified, in this Order the RPA procedures from the SIP were used to evaluate reasonable potential for both CTR and non-CTR constituents based on information submitted as part of the application, in studies, and as directed by monitoring and reporting programs.

- b. Constituents with No Reasonable Potential.** WQBELs are not included in this Order for constituents that do not demonstrate reasonable potential (i.e., constituents were not detected in the effluent or receiving water); however, monitoring for those pollutants is established in this Order as required by the SIP. If the results of effluent monitoring demonstrate reasonable potential, this Order may be reopened and modified by adding an appropriate effluent limitation.

Most constituents with no reasonable potential are not discussed in this order. However, Order R5-2007-0069 contained WQBELs for the following constituents that were found to have no reasonable potential after assessment of the data:

**i. Carbon Tetrachloride**

**(a) WQO.** The CTR includes criteria for the protection of human health for waters from which both water and organisms are consumed for carbon tetrachloride of 0.25 µg/L. Order R5-2007-0069 established an effluent limitation for carbon tetrachloride based on the CTR criterion.

**(b) RPA Results.** The MEC for carbon tetrachloride was 0.202 µg/L based on 29 samples collected between September 2007 and January 2012. Carbon tetrachloride was not detected in the upstream receiving water based on four samples collected between September 2007 and January 2012 (minimum MDL 0.077 µg/L, RL 0.5 µg/L). Therefore, carbon tetrachloride in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria of 0.25 µg/L, and the effluent limitation for carbon tetrachloride has not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

**ii. Chlorine, Total Residual**

**(a) WQO.** USEPA developed NAWQC for protection of freshwater aquatic life for chlorine residual. The recommended 4-day average (chronic) and 1-hour average (acute) criteria for chlorine residual are 0.011 µg/L and 0.019 µg/L, respectively. These criteria are protective of the Basin Plan’s narrative toxicity objective.

**(b) RPA Results.** The Discharger converted from chlorine disinfection to UV disinfection in May 2010. The UV disinfection system is used for both the

surface water discharge and the reclamation system. The Discharger uses chlorine for algae control and filter cleaning during the summer when surface water discharges are not occurring. The Discharger discontinued monitoring for chlorine residual in May 2010 with the conversion to UV disinfection. Because chlorine is not used in the treatment system when discharging to Carson Creek, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the NAWQC criteria and the WQBELs for chlorine residual have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

### iii. Copper

- (a) **WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for copper. These criteria for copper are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default USEPA translators were used in this Order.

The Discharger submitted the *El Dorado Hills Wastewater Treatment Plant Copper Water-Effect Ratio Study* (Robertson-Bryan, Inc.) dated February 2008. The Discharger conducted the study per USEPA's *Streamlined Water-Effect Ratio Procedure for Discharges of Copper* (EPA-822-R-01-005). Based on the results of the study, the Central Valley Water Board concludes that a dissolved WER of 8.04 and a total recoverable WER of 8.05 is applicable to the discharge to Carson Creek.

- (b) **RPA Results.** Section IV.C.2.e includes procedures for conducting the RPA for copper. The maximum observed upstream receiving water copper concentration was 4.3 µg/L (total recoverable), based on four samples collected between September 2007 and January 2012. Based on the lowest observed upstream receiving water hardness of 85 mg/L (as CaCO<sub>3</sub>) and the site-specific WER of 8.05, the applicable total recoverable criteria for evaluating the ambient background concentration are 65 µg/L and 97 µg/L, for the chronic and acute criteria respectively. Based on this data, the maximum ambient background copper concentration does not exceed the applicable CTR criteria.

As discussed in Section IV.C.2.e for comparing the MEC to the criteria, the reasonable worst-case downstream ambient hardness should be used. Based on a hardness of 63 mg/L (as CaCO<sub>3</sub>) and the site-specific WER of 8.05, the applicable total recoverable criteria are 51 µg/L and 73 µg/L, for the chronic and acute criteria respectively. The MEC for copper (total recoverable) was 8.0 µg/L, based on 29 samples collected between September 2007 and January 2012. Based on this data, the MEC does not exceed the applicable CTR criteria.

Order R5-2007-0069 included effluent limitations for copper. As previously discussed, the Discharger submitted a site-specific WER that was not available at the time Order R5-2007-0069 was adopted. Based on new information, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria, and therefore, the effluent limitations for copper have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

#### iv. Cyanide

(a) **WQO.** The CTR includes maximum 1-hour average and 4-day average criteria of 22 µg/L and 5.2 µg/L, respectively, for total recoverable cyanide for the protection of freshwater aquatic life.

(b) **RPA Results.** Cyanide is a known byproduct of the chlorine disinfection process. Since the Discharger converted to UV disinfection in May 2010, cyanide was detected, but not quantified, in three of 11 effluent samples with a maximum estimated concentration of 4.3 µg/L, which does not exceed the CTR criterion. Cyanide was not detected in the upstream receiving water. Based on this data, the Central Valley Water Board concludes that cyanide in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health and the WQBELs for cyanide have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3. of the Fact Sheet).

#### v. Dibromochloromethane

(a) **WQO.** The CTR includes criteria for the protection of human health for waters from which both water and organisms are consumed for dibromochloromethane of 0.41 µg/L. Order R5-2007-0069 included effluent limitations for dibromochloromethane based on the CTR criterion.

(b) **RPA Results.** Dibromochloromethane is a chlorine disinfection byproduct. The Discharger converted from chlorine disinfection to UV disinfection in May 2010. Following the conversion to UV disinfection in May 2010, dibromochloromethane has not been detected in the discharge based on 13 samples (minimum MDL 0.15 µg/L, minimum RL 0.4 µg/L). Dibromochloromethane was not detected in the upstream receiving water based on four samples collected between September 2007 and January 2012 (minimum MDL 0.049 µg/L, RL 0.5 µg/L). Therefore, dibromochloromethane in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion of 0.41 µg/L, and the WQBELs for dibromochloromethane have not been retained in this Order. Removal of these effluent limitations is in

accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

**vi. Dichlorobromomethane**

**(a) WQO.** The CTR includes criteria for the protection of human health for waters from which both water and organisms are consumed for dichlorobromomethane of 0.56 µg/L. Order R5-2007-0069 included effluent limitations for dichlorobromomethane based on the CTR criterion.

**(b) RPA Results.** Dichlorobromomethane is a chlorine disinfection byproduct. The Discharger converted from chlorine disinfection to UV disinfection in May 2010. Following the conversion to UV disinfection in May 2010, dichlorobromomethane has not been detected in the discharge based on 10 samples (minimum MDL 0.11 µg/L, minimum RL 0.4 µg/L). Dichlorobromomethane was not detected in the upstream receiving water based on four samples collected between September 2007 and January 2012 (minimum MDL 0.031 µg/L, RL 0.5 µg/L). Therefore, dichlorobromomethane in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion of 0.56 µg/L, and the WQBELs for dichlorobromomethane have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

**vii. Iron**

**(a) WQO.** The Department of Public Health (DPH) has adopted a Secondary MCL for iron of 300 µg/L, which is protective of the Basin Plan's chemical constituent objective. Order R5-2007-0069 included an effluent limitation for iron based on the Secondary MCL.

**(b) RPA Results.** The maximum effluent concentration for iron was 52 µg/L based on 28 samples collected between September 2007 and January 2012. The maximum observed upstream receiving water concentration for iron was 250 µg/L based on three samples collected between September 2007 and January 2012. Therefore, iron in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL of 300 µg/L, and the WQBEL for iron has not been retained in this Order. Removal of this effluent limitation is in accordance with federal anti-backsliding regulations (see section IV.D.3. of the Fact Sheet).

**viii. Manganese**

**(a) WQO.** DPH has adopted a Secondary MCL for manganese of 50 µg/L, which is protective of the Basin Plan's chemical constituent objective.

Order R5-2007-0069 included an effluent limitation for manganese based on the Secondary MCL.

**(b) RPA Results.** The maximum effluent concentration for manganese was 33 µg/L based on 28 samples collected between September 2007 and January 2012. The maximum observed upstream receiving water concentration for manganese was 27 µg/L based on three samples collected between September 2007 and January 2012. Therefore, manganese in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Secondary MCL of 50 µg/L. Carson Creek, the receiving water, is listed as a WQLS for manganese based on three out of four analytical monitoring results collected between 27 March 2001 and 22 October 2001 that indicated concentrations of manganese above the Secondary MCL. A TMDL is not currently proposed, and is not expected to be completed before the year 2021. Based on these new monitoring results, the previous WQBEL for manganese has not been retained in this Order. Removal of this effluent limitation is in accordance with federal anti-backsliding regulations (see section IV.D.3. of the Fact Sheet).

#### **ix. Persistent Chlorinated Hydrocarbon Pesticides**

**(a) WQO.** The Basin Plan requires that no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; persistent chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. Persistent chlorinated hydrocarbon pesticides include aldrin; alpha-BHC; beta-BHC; gamma-BHC; delta-BHC; chlordane; 4,4-DDT; 4,4-DDE; 4,4-DDD; dieldrin; alpha-endosulfan; beta-endosulfan; endosulfan sulfate; endrin; endrin aldehyde; heptachlor; heptachlor epoxide; and toxaphene. The CTR also contains water quality criteria for individual pesticides for the protection of water and organisms. Order No. R5-2007-0069 included effluent limitations for persistent chlorinated hydrocarbon (i.e., organochlorine) pesticides based on the Basin Plan objective.

**(b) RPA Results.** Alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide were detected in the effluent (see Fact Sheet section IV.C.3.d.viii.). However, 23 effluent and 4 upstream receiving water samples of the remaining individual persistent chlorinated hydrocarbon pesticides, obtained between 29 December 2008 and 10 January 2012, resulted in no detected results above the following minimum MDLs and RLs:

**Table F-8. Minimum MDLs and RLs for Persistent Chlorinated Hydrocarbon Pesticides**

Constituent	SIP ML	Minimum MDL	Minimum RL
Aldrin	0.005	0.0016	0.005
Beta-BHC	0.005	0.00092	0.005
Gamma-BHC	0.02	0.0014	0.01
Delta-BHC	0.005	0.0014	0.005
Chlordane	0.1	0.034	0.05
4,4-DDT	0.01	0.001	0.01
4,4-DDE	0.05	0.002	0.01
4,4-DDD	0.05	0.001	0.01
Dieldrin	0.01	0.0018	0.01
Alpha-endosulfan	0.02	0.0016	0.01
Beta-endosulfan	0.01	0.00092	0.005
Endosulfan sulfate	0.05	0.0023	0.01
Endrin	0.01	0.0019	0.01
Toxaphene	0.5	0.052	0.5

Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above Basin Plan objective or CTR criteria for persistent chlorinated hydrocarbon pesticides (except alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide) and the effluent limitations for persistent chlorinated hydrocarbon pesticides (except alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide) have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

#### x. Salinity

- (a) **WQO.** The Basin Plan contains a chemical constituent objective that incorporates state MCLs, contains a narrative objective, and contains numeric water quality objectives for certain specified water bodies for electrical conductivity, total dissolved solids, sulfate, and chloride. The USEPA Ambient Water Quality Criteria for chloride recommends acute and chronic criteria for the protection of aquatic life. There are no USEPA water quality criteria for the protection of aquatic life for electrical conductivity, total dissolved solids, and sulfate. Additionally, there are no USEPA numeric water quality criteria for the protection of agricultural, livestock, and industrial uses. Numeric values for the protection of these uses are typically based on site specific conditions and evaluations to determine the appropriate constituent threshold necessary to interpret the narrative chemical constituent Basin Plan objective.

**Table F-9. Salinity Water Quality Criteria/Objectives**

Parameter	Agricultural WQ Goal <sup>1</sup>	Secondary MCL <sup>3</sup>	Effluent	
			Average	Maximum
EC (µmhos/cm)	Varies <sup>2</sup>	900, 1600, 2200	439	496
TDS (mg/L)	Varies	500, 1000, 1500	NA	NA
Sulfate (mg/L)	Varies	250, 500, 600	NA	NA

Parameter	Agricultural WQ Goal <sup>1</sup>	Secondary MCL <sup>3</sup>	Effluent	
			Average	Maximum
Chloride (mg/L)	Varies	250, 500, 600	36	36

NA – Data not available

- <sup>1</sup> Narrative chemical constituent objective of the Basin Plan. Procedures for establishing the applicable numeric limitation to implement the narrative objective can be found in the Policy for Application of Water Quality, Chapter IV, Section 8 of the Basin Plan. However, the Basin Plan does not require improvement over naturally occurring background concentrations. In cases where the natural background concentration of a particular constituent exceeds an applicable water quality objective, the natural background concentration will be considered to comply with the objective.
- <sup>2</sup> The EC level in irrigation water that harms crop production depends on the crop type, soil type, irrigation methods, rainfall, and other factors.
- <sup>3</sup> The Secondary MCLs are stated as a recommended level, upper level, and a short-term maximum level.

**(1) Chloride.** The Secondary MCL for chloride is 250 mg/L, as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum. ~~The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The most limiting agricultural water quality goal to interpret the narrative chemical constituents objective, is 106 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations— Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). The 106 mg/L water quality goal is intended to protect against adverse effects on sensitive crops when irrigated via sprinklers. However, the agricultural water quality goal is not a site-specific goal or objective, but rather a general measure to protect salt-sensitive crops. Site-specific levels of chloride for the receiving waters are necessary to interpret the narrative chemical constituents objective for protection of agricultural supply.~~

The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV-SALTS.

**(2) Electrical Conductivity.** The Secondary MCL for EC is 900 µmhos/cm as a recommended level, 1600 µmhos/cm as an upper level, and 2200 µmhos/cm as a short-term maximum. ~~The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The most limiting agricultural water quality goal may be as low as 700 µmhos/cm as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations— Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). However, the 700 µmhos/cm agricultural water~~

~~quality goal is not a site-specific goal or objective, but rather a general measure of electrical conductivity that was determined to protect salt-sensitive crops, such as beans, carrots, turnips, and strawberries, under certain soil and climate conditions. Most other crops can tolerate higher EC concentrations without harm. Site-specific levels of EC for the receiving waters to interpret the narrative chemical constituents objective in the Basin Plan for protection of agricultural supply are necessary. Overall, salinity of agricultural irrigation water must be maintained at levels in which growers do not need to take extra measures to minimize or eliminate any harmful impacts.~~

The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV-SALTS.

- (3) Sulfate.** The secondary MCL for sulfate is 250 mg/L as a recommended level, 500 mg/L as an upper level, and 600 mg/L as a short-term maximum.
- (4) Total Dissolved Solids.** The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. ~~The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The most limiting agricultural water quality goal may be as low as 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations—Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcott, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. However, the water quality goal is not a site-specific goal, but rather a general measure of TDS that was determined to protect salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm. Site-specific levels of TDS for the receiving waters to interpret the narrative chemical constituents objective are necessary.~~

The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley.



Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV-SALTS.

#### **(b) RPA Results**

**(1) Chloride.** Chloride was detected in the effluent at a concentration of 36 mg/L based on one sample collected subsequent to the conversion from chlorine disinfection to UV disinfection in May 2010. This level does not exceed the Secondary MCL. Background concentrations in Carson Creek ranged from 15 mg/L to 38 mg/L, with an average of 26 mg/L, for three samples.

**(2) Electrical Conductivity.** A review of the Discharger's monitoring reports since the conversion from chlorine disinfection to UV disinfection shows an average effluent EC of 439  $\mu\text{mhos/cm}$ , with a range from 354  $\mu\text{mhos/cm}$  to 496  $\mu\text{mhos/cm}$ . These levels do not exceed the Secondary MCL. The background receiving water EC averaged 426  $\mu\text{mhos/cm}$ .

**(3) Sulfate.** Monitoring data for sulfate is not available.

**(4) Total Dissolved Solids.** Monitoring data for total dissolved solids is not available.

Based on the relatively low reported salinity, the discharge does not have reasonable potential to cause or contribute to an in-stream excursion of water quality objectives for salinity. The Discharger submitted a salinity evaluation and minimization plan on 14 May 2008, which was approved on 17 December 2008, proposing that conversion from chlorine disinfection to UV disinfection would significantly reduce effluent salinity. Consistent with the salinity evaluation and minimization plan, monitoring data since conversion to UV disinfection indicates a reduction in effluent EC concentrations. Therefore, salinity in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above applicable water quality objectives, and the WQBEL for EC has not been retained in this Order. Removal of this effluent limitation is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

#### **xi. Settleable Solids**

**(a) WQO.** For inland surface waters, the Basin Plan states that “[w]ater shall not contain substances in concentrations that result in the deposition of material that causes nuisance or adversely affects beneficial uses.” Order

No. R5-2007-0069 established an AMEL of 0.1 ml/L and a MDEL of 0.2 ml/L for settleable solids to implement the narrative settleable solids objective.

**(b) RPA Results.** Settleable solids were detected in the effluent three times at concentrations of 0.3 ml/L (19 January 2010), 0.1 ml/L (22 January 2010), and 0.2 ml/L (12 March 2010) based on 722 samples collected between September 2007 and January 2012. The cover letter for the January 2010 SMR indicates that *“Investigating other results for the same day and the sample time it was found that the effluent NTU for that day was 0.91 and the TSS was 1.1 mg/L; both well below limits. The lab staff reported the material in the Imhoff Cone looked like seeds or plant material. It is believed this material entered the contact basin because of the extreme winds that day. The wind speeds were unknown for the day, but it was strong enough to damage the covers on the chlorine contact basins and other structures in the plant. The Settleable Solids results prior to and following January 19th, 2010 were <0.1 ml/L. We believe the 0.3 ml/L value is not indicative of our plant process and therefore, we believe no true violation occurred.”* Section 1.2 of the SIP states *“The RWQCB shall have discretion to consider if any data are inappropriate or insufficient for use in implementing this Policy. Instances where such consideration is warranted include, but are not limited to, the following: evidence that a sample has been erroneously reported or is not representative of effluent or ambient receiving water quality; questionable quality control/quality assurance practices; and varying seasonal conditions.”* The Central Valley Water Board finds that the 19 January 2010 effluent sample is not representative of the discharge and did not use the sample in conducting the RPA. Because settleable solids were not detected above existing effluent limitations and because the Discharger provides tertiary treatment, the discharge from the Facility does not have reasonable potential to cause or contribute to an excursion above the Basin Plan’s narrative objective for settleable solids and the effluent limitations for settleable solids have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

## **xii. Total Trihalomethanes**

**(a) WQO.** DPH has adopted a Primary MCL for total trihalomethanes of 80 µg/L, which is protective of the Basin Plan’s chemical constituent objective. Total trihalomethanes include bromoform, dibromochloromethane, chloroform, and dichlorobromomethane. Order R5-2007-0069 included an effluent limitation for total trihalomethanes based on the Primary MCL.

**(b) RPA Results.** Total trihalomethanes are chlorine disinfection byproducts. The Discharger converted from chlorine disinfection to UV disinfection in May 2010. Bromoform, dibromochloromethane, and

dichlorobromomethane were not detected in the effluent discharge based on twelve samples for bromoform (minimum MDL 0.15 µg/L, minimum RL 0.4 µg/L), thirteen samples for dibromochloromethane (minimum MDL 0.15 µg/L, minimum RL 0.4 µg/L), and ten samples for dichlorobromomethane (minimum MDL 0.11 µg/L, minimum RL 0.4 µg/L) obtained from 29 May 2010 through 10 January 2012, which is after the Facility's conversion to UV disinfection. Based on 12 chloroform samples obtained during this same period, the MEC for chloroform was 0.72 µg/L. Bromoform (minimum MDL 0.1 µg/L, minimum RL 0.5 µg/L), dibromochloromethane (minimum MDL 0.049 µg/L, RL 0.5 µg/L), chloroform (minimum MDL 0.06 µg/L, RL 0.5 µg/L), and dichlorobromomethane (minimum MDL 0.031 µg/L, RL 0.5 µg/L) were not detected in the upstream receiving water based on four samples collected between September 2007 and January 2012. Therefore, total trihalomethanes in the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the Primary MCL, and the WQBEL for total trihalomethanes has not been retained in this Order. Removal of this effluent limitation is in accordance with federal anti-backsliding regulations (see section IV.D.3. of the Fact Sheet).

### **xiii. Zinc**

**(a) WQO.** The CTR includes hardness-dependent criteria for the protection of freshwater aquatic life for zinc. These criteria for zinc are presented in dissolved concentrations. USEPA recommends conversion factors to translate dissolved concentrations to total concentrations. Default USEPA translators were used in this Order.

**(b) RPA Results.** Section IV.C.2.e includes procedures for conducting the RPA for zinc. The maximum observed upstream receiving water zinc concentration was 4.7 µg/L (total recoverable), based on four samples collected between September 2007 and January 2012. Based on the lowest observed upstream receiving water hardness of 85 mg/L (as CaCO<sub>3</sub>), the applicable total recoverable criteria for evaluating the ambient background concentration are both 104 µg/L for the chronic and acute criteria. Based on this data, the maximum ambient background zinc concentration does not exceed the applicable CTR criteria.

As discussed in Section IV.C.2.e for comparing the MEC to the criteria, the reasonable worst-case downstream ambient hardness should be used. Based on a hardness of 63 mg/L (as CaCO<sub>3</sub>), the applicable total recoverable criteria are both 81 µg/L for the chronic and acute criteria. The MEC for zinc (total recoverable) was 67.3 µg/L based on 29 samples. Based on this data, the MEC does not exceed the applicable CTR criteria.

Order R5-2007-0069 included effluent limitations for zinc based on the CTR hardness dependent criteria for the protection of freshwater aquatic

life for zinc. The MEC for zinc and the maximum ambient background for zinc do not exceed the applicable criteria. Therefore, the discharge does not demonstrate reasonable potential to cause or contribute to an in-stream excursion above the CTR criteria. Therefore, the effluent limitations for zinc have not been retained in this Order. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3 of the Fact Sheet).

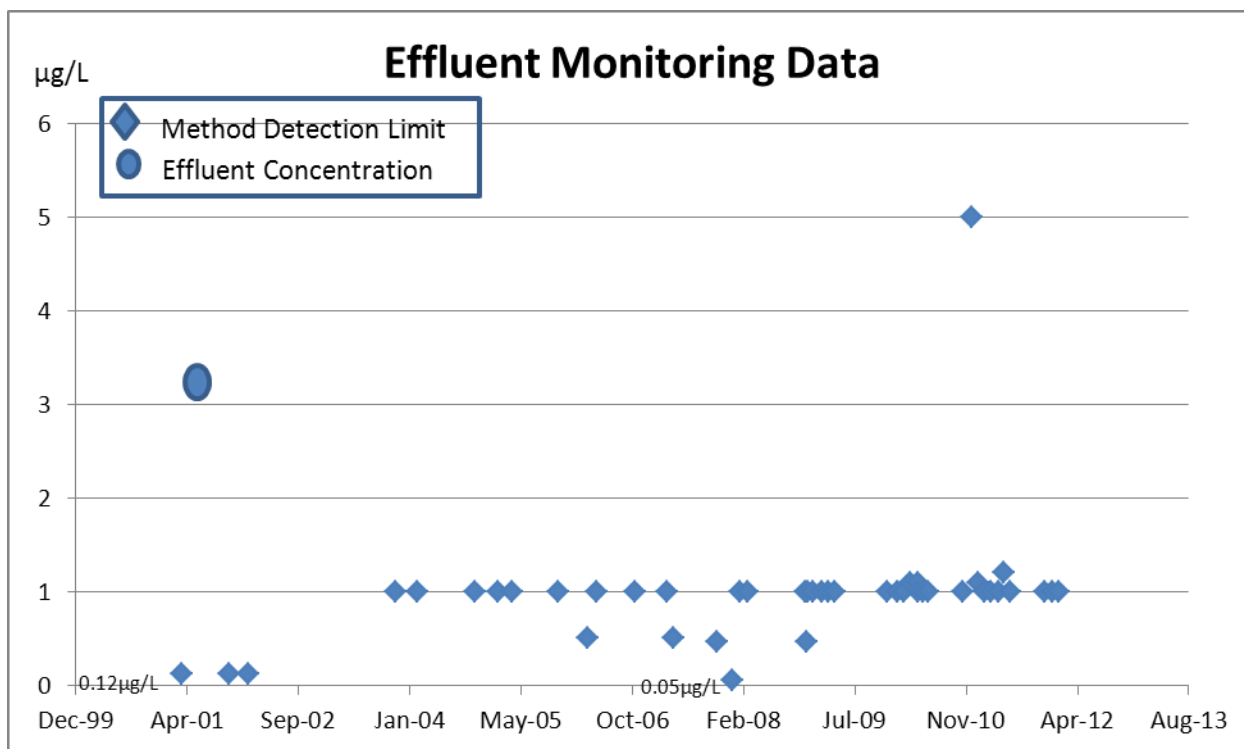
- c. Constituents with Insufficient Data.** Reasonable potential cannot be determined for the following constituent because effluent data are insufficient. The Discharger is required to continue to monitor for this constituent in the effluent using analytical methods that provide the best feasible detection limits. When additional data become available, further analysis will be conducted to determine whether to add numeric effluent limitations or to continue monitoring.

**i. Bis (2-chloroethyl) Ether**

- (a) WQO.** The CTR includes a criterion of 0.031 µg/L for bis (2-chloroethyl) ether for the protection of human health for waters from which both water and organisms are consumed. Order R5-2007-0069 included effluent limitations for bis (2-chloroethyl) ether based on the CTR human health criterion.

- (b) RPA Results.** Bis (2-chloroethyl) ether was not detected in 29 effluent samples collected between September 2007 and January 2012, with a minimum MDL of 0.46 µg/L. Bis (2-chloroethyl) ether was not detected in four receiving water samples collected between September 2007 and January 2012, with a minimum MDL of 1 µg/L. ~~In accordance with the SIP section 1.3, Step 8, since the lowest MDLs for the samples are greater than the CTR water quality criterion, monitoring is required in place of WQBELs. Therefore, the WQBELs for bis (2-chloroethyl) ether have not been retained in this Order, and instead, additional monitoring is required. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3. of the Fact Sheet).~~

The graph below shows the effluent monitoring data since 2001. Included on the graph are the method detection limits and the effluent concentrations from all the effluent samples since 2001. As the graph depicts, there has been only one analytical monitoring result that indicated an effluent concentration of 3.2 µg/L, sampled on 20 June 2001. This detection was the basis for the bis (2-chloroethyl) ether effluent limitations contained in Order R5-2007-0069. All other samples from March 2001 through May 2006 were non-detect, including 4 receiving water samples collected between March 2001 and January 2002. In total, since 2001, there have been 44 effluent samples with only one detection. Based on effluent monitoring data set for the past ten years, the detection on 20 June 2001 is an outlier and not representative of the effluent discharge.



In accordance with the SIP section 1.3, Step 8, since the lowest MDLs for the samples are greater than the CTR water quality criterion, monitoring is required in place of WQBELs. Therefore, the WQBELs for bis (2-chloroethyl) ether have not been retained in this Order, and instead, additional monitoring is required. Removal of these effluent limitations is in accordance with federal anti-backsliding regulations (see section IV.D.3. of the Fact Sheet).

**d. Constituents with Reasonable Potential.** The Central Valley Water Board finds that the discharge has a reasonable potential to cause or contribute to an in-stream excursion above a water quality standard for alpha-BHC, aluminum, ammonia, bis (2-ethylhexyl) phthalate, BOD<sub>5</sub>, endrin aldehyde, heptachlor, heptachlor epoxide, mercury, nitrate plus nitrite, pH, total coliform organisms, and TSS. WQBELs for these constituents are included in this Order. A summary of the RPA is provided in Attachment G, and a detailed discussion of the RPA for each constituent is provided below.

**i. Aluminum.** Aluminum is the third most abundant element in the earth's crust and is ubiquitous in both soils and aquatic sediments. When mobilized in surface waters, aluminum has been shown to be toxic to various fish species. However, the potential for aluminum toxicity in surface waters is directly related to the chemical form of aluminum present, and the chemical form is highly dependent on water quality characteristics that ultimately determine the mechanism of aluminum toxicity. Surface water characteristics, including pH, temperature, colloidal material, fluoride and sulfate concentrations, and total organic carbon, all influence aluminum speciation and its subsequent

bioavailability to aquatic life. Calcium [hardness] concentrations in surface water may also reduce aluminum toxicity by competing with monomeric aluminum ( $Al^{3+}$ ) binding to negatively charged fish gills.

#### (a) WQO

The Code of Federal Regulations promulgated criteria for priority toxic pollutants for California's surface waters as part of section 131.38 Establishment of Numeric Criteria for Priority Toxic Pollutants for the State of California (California Toxics Rule or CTR), including metals criteria. However, aluminum criteria were not promulgated as part of the CTR. Absent numeric aquatic life criteria for aluminum, WQBEL's in the Central Valley Region's NPDES permits are based on the Basin Plans' narrative toxicity objective. The Basin Plans' Policy for Application of Water Quality Objectives requires the Central Valley Water Board to consider, *"on a case-by-case basis, direct evidence of beneficial use impacts, all material and relevant information submitted by the discharger and other interested parties, and relevant numerical criteria and guidelines developed and/or published by other agencies and organizations. In considering such criteria, the Board evaluates whether the specific numerical criteria which are available through these sources and through other information supplied to the Board, are relevant and appropriate to the situation at hand and, therefore, should be used in determining compliance with the narrative objective."* Relevant information includes, but is not limited to (1) USEPA Ambient Water Quality Criteria (AWQC) and subsequent Correction, (2) site-specific conditions of Carson Creek, the receiving water, and (3) site-specific aluminum studies conducted by dischargers within the Central Valley Region. (Basin Plan, p. IV.-17.00; see also, 40 CFR 122.44(d)(vi).)

**USEPA NAWQC.** USEPA recommended the NAWQC aluminum chronic criterion at 87  $\mu g/L$  based upon the follow two toxicity tests. All test waters contained hardness at 12  $mg/L$  as  $CaCO_3$ .

- (1) Acute toxicity tests at various aluminum doses were conducted in various acidic waters (pH 6.0 – 7.2) on 159- and 160-day old striped bass. The 159-day old striped bass showed no mortality in waters with pH at 6.5 and aluminum doses at 390  $\mu g/L$ , and the 160-day old striped bass showed 58% mortality at a dose of 174.4  $\mu g/L$  in same pH waters. However, the 160-day old striped bass showed 98% mortality at aluminum dose of 87.2  $\mu g/L$  in waters with pH at 6.0, which is USEPA's basis for the 87  $\mu g/L$  chronic criterion. The varied results of this study draw into question the applicability of the AWQC chronic criterion of 87  $\mu g/L$ .
- (2) Chronic toxicity effects on 60-day old brook trout were evaluated in circumneutral pH waters (6.5-6.9 pH) in five cells at various aluminum doses (4, 57, 88, 169, and 350  $\mu g/L$ ). Chronic evaluation started upon

hatching of eyed eggs of brook trout, and their weight and length were measure after 45 days and 60 days. The 60-day old brook trout showed 24% weight loss at 169 µg/L of aluminum and 4% weight loss at 88 µg/L of aluminum, which is the basis for USEPA's chronic criteria. Though this test study shows chronic toxic effects 4% reduction in weight) after exposure for 60-days, the chronic criterion is based on 4-day exposure; so again, the applicability of the AWQC chronic criterion of 87 µg/L is questionable.

**Site-specific Conditions.** El Dorado Hills is 750 feet above sea level. Effluent and Carson Creek monitoring data indicate that the pH and hardness values are not similar to the low pH and hardness conditions under which the chronic criterion for aluminum was developed, as shown in the table below, and therefore, we don't expect aluminum to be as reactive in Carson Creek as in the previously described toxicity tests. The pH of Carson Creek ranged from 7.1 to 8.3 with an average of 7.7 based on 216 monitoring results obtained between September 2007 and January 2012. The hardness of Carson Creek ranged from 85 mg/L to 250 mg/L based on 74 samples. Moreover, Carson Creek does not support a resident, self-sustaining population of rainbow trout. Brook trout and striped bass have not been surveyed nor expected to be present (<http://bios.dfg.ca.gov/>) since striped bass is non-native to California and brook trout is present in higher elevation lakes and streams.

Parameter	Units	Test Conditions for Applicability of Chronic Criterion	Effluent	Carson Creek
pH	standard units	6.0 – 6.5	6.7 – 8.2	7.1 – 8.3
Hardness, Total (as CaCO <sub>3</sub> )	mg/L	12	63 – 79	85 – 250
Aluminum, Total Recoverable	µg/L	87.2 - 390	<20 – 450	43 – 82

**Local Environmental Conditions and Studies.** Twenty-one site-specific aluminum toxicity tests have been conducted within the Central Valley Region. The pH and hardness of Carson Creek are similar, as shown in the table below, and thus the results of these site-specific aluminum toxicity tests is relevant and appropriate for Carson Creek. As shown in the following table, all EC<sub>50</sub> toxicity study result values are at concentrations of aluminum above 5000 µg/L. Thus, the toxic effects of aluminum in surface waters within the Central Valley Region, including Carson Creek, are less toxic (or less reactive) to aquatic species than demonstrated in the toxicity tests that USEPA used for the basis of establishing the chronic criterion of 87 µg/L. This new information, and review of the toxicity tests USEPA used to establish the chronic criterion, indicates that 87 µg/L is overly stringent and not applicable to Carson Creek.

### Central Valley Region Site-Specific Toxicity Data

Discharger (City)	Species	Test Waters	Hardness Value	Total Aluminum EC <sub>50</sub> Value	pH	WER
Auburn	<i>Ceriodaphnia dubia</i>	Effluent	99	>5270	7.44	>19.3
	" "	Surface Water	16	>5160	7.44	>12.4
Manteca	" "	Surface Water/Effluent	124	>8800	9.14	N/C
	" "	Effluent	117	>8700	7.21	>27.8
	" "	Surface Water	57	7823	7.58	25.0
	" "	Effluent	139	>9500	7.97	>21.2
	" "	Surface Water	104	>11000	8.28	>24.5
	" "	Effluent	128	>9700	7.78	>25.0
	" "	Surface Water	85	>9450	7.85	>25.7
	" "	Effluent	106	>11900	7.66	>15.3
	" "	Surface Water	146	>10650	7.81	>13.7
Modesto	" "	Surface Water/Effluent	120/156	31604	8.96	211
Yuba City	" "	Surface Water/Effluent	114/164 <sup>1</sup>	>8000	7.60/7.46	>53.5
Placer County	" "	Effluent	150	>5000	7.4 – 8.7	>13.7
Manteca	<i>Daphnia magna</i>	Surface Water/Effluent	124	>8350	9.14	N/C
Modesto	" "	Surface Water/Effluent	120/156	>11900	8.96	>79.6
Yuba City	" "	Surface Water/Effluent	114/164 <sup>1</sup>	>8000	7.60/7.46	>53.5
Manteca	<i>Oncorhynchus mykiss</i> (rainbow trout)	Surface Water/Effluent	124	>8600	9.14	N/C
Auburn	" "	Surface Water	16	>16500	7.44	N/C
Modesto	" "	Surface Water/Effluent	120/156	>34250	8.96	>229
Yuba City	" "	Surface Water/Effluent	114/164 <sup>1</sup>	>8000	7.60/7.46	>53.5

<sup>1</sup> Hardness values may be biased high because the EDTA titrimetric method is subject to interferences that measure as hardness (barium, cadmium, lead, manganese, strontium, and zinc will be measured as hardness) producing hardness numbers that are likely to be greater than the calculation of hardness based upon the ICP analysis of calcium and magnesium. Upstream receiving water hardness ranged from 30 to 50.9 mg/L as CaCO<sub>3</sub> between January 2008 and August 2011. Furthermore, the upstream receiving water hardness was 37 mg/L as CaCO<sub>3</sub> on 4 October 2005, 7 days prior to the Feasibility Assessment (first phase of a Water Effects Ratio study) sample collection date of 11 October 2005. It is likely that matrix interferences from other metals were responsible for the unexpected hardness values reported by Pacific EcoRisk.

The Discharger has not conducted a toxicity test for aluminum; however, the City of Auburn conducted two toxicity tests in Auburn Ravine, shown highlighted in the previous table. The City of Auburn is located at an elevation of approximately 1,400 feet above sea level, and is surrounded by forest. As shown, the test water quality characteristics of Auburn Ravine are critically lower than Carson Creek, with the pH at 7.4 and hardness at 16 mg/L as CaCO<sub>3</sub> in comparison to the mean pH at 7.4 and the mean hardness at 197 mg/L as CaCO<sub>3</sub>, respectively. Thus results of site-specific studies conducted on Auburn Ravine would represent conservative assumptions for Carson Creek since Carson Creek's water quality characteristics (pH and hardness) are higher, and therefore, aluminum is less toxic to aquatic life in Carson Creek. Thus, based on these two similar primary water quality characteristics (pH and hardness) that drive aluminum speciation, the aluminum toxicity within Auburn Ravine is expected to be similar in Carson Creek. Therefore, the Auburn



Ravine aluminum toxicity test study is relevant and appropriate in this case for use in determining the specific numerical criteria to be used in determining compliance with the Basin Plan's narrative toxicity objective. The Auburn Ravine aluminum toxicity study resulted in a site-specific aluminum objective at 1,079 µg/L. Thus, these results support the conclusion that the 87 µg/L chronic criterion is overly stringent for Carson Creek.

Carson Creek, the receiving water, is listed as a WQLS for aluminum for the protection of human health. DPH has established Secondary MCLs to assist public drinking water systems in managing their drinking water for aesthetic conditions such as taste, color, and odor. The Secondary MCL for aluminum is 200 µg/L. USEPA has also adopted an NAWQC acute criterion of 750 µg/L for the protection of aquatic life.

**(b) RPA Results.** Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis, when sampling at least quarterly. Aluminum is not a priority pollutant and the RPA procedures in section 1.3 of the SIP are not required. To be consistent with how compliance with the standards is determined, the RPA was conducted based on the calendar annual average aluminum concentrations. The maximum effluent concentration for aluminum was 450 µg/L based on 28 samples and the maximum observed annual average effluent concentration was 217 µg/L. The maximum observed upstream receiving water concentration was 82 µg/L. The discharge does not exhibit reasonable potential to cause or contribute to an in-stream excursion above the NAWQC acute criterion.

**(c) WQBELs.** Since it is necessary to determine compliance on an annual average basis, it is impracticable to calculate average weekly and average monthly effluent limitations. Therefore, this Order contains a final calendar annual average effluent limitation for aluminum based on the Secondary MCL. If a TMDL program is adopted for aluminum based on protection of human health, the effluent limit may be modified in accordance with the new amended standards.

**(d) Plant Performance and Attainability.** The Discharger indicated in the ROWD that the Facility can consistently comply with the final effluent limitation for aluminum.

## ii. Ammonia

**(a) WQO.** The NAWQC for the protection of freshwater aquatic life for total ammonia, recommends acute (1-hour average; criteria maximum concentration or CMC) standards based on pH and chronic (30-day average; criteria continuous concentration or CCC) standards based on pH and temperature. USEPA also recommends that no 4-day average

concentration should exceed 2.5 times the 30-day CCC. USEPA found that as pH increased, both the acute and chronic toxicity of ammonia increased. Salmonids were more sensitive to acute toxicity effects than other species. However, while the acute toxicity of ammonia was not influenced by temperature, it was found that invertebrates and young fish experienced increasing chronic toxicity effects with increasing temperature. Because Carson Creek has a beneficial use of cold freshwater habitat and the presence of salmonids and early fish life stages in the Cosumnes River (to which Carson Creek, via Deer Creek, is tributary) is well-documented, the recommended criteria for waters where salmonids and early life stages are present were used.

The Basin Plan objective for pH in the receiving stream is the range of 6.5 to 8.5. The Discharger requested in the ROWD an instantaneous maximum effluent pH limitation of 8.3 which reflects a level consistently achievable by the Facility. Data collected over the previous permit term indicate that pH in the effluent was consistently below 8.2. Therefore, at the request of the Discharger, this Order establishes a more stringent instantaneous maximum pH limitation of 8.3. In order to protect against the worst-case short-term exposure of an organism, the permitted instantaneous maximum pH limitation of 8.3 was used to derive the acute criterion. The resulting acute criterion is 3.15 mg/L.

A chronic criterion was calculated for each day when paired temperature and pH were measured using receiving water data for temperature and pH recorded during the discharge season from the Discharger's monthly monitoring reports from September 2007 through January 2012. Rolling 30-day average criteria were calculated from upstream and downstream data using the criteria calculated for each day and the minimum observed 30-day average criterion was established as the applicable 30-day average chronic criterion, or 30-day CCC. The resulting 30-day CCC is 2.01 mg/L (as N). The 4-day average concentration is derived in accordance with the USEPA criterion as 2.5 times the 30-day CCC. Based on the 30-day CCC of 2.01 mg/L (as N), the 4-day average concentration that should not be exceeded is 5.03 mg/L (as N).

**(b) RPA Results.** Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." For priority pollutants, the SIP dictates the procedures for conducting the RPA. Ammonia is not a priority pollutant. Therefore, the Central Valley Water Board is not restricted to one particular RPA method. Due to facility type and the site-specific conditions of the discharge, the Central Valley Water Board has used its judgment in determining the

appropriate method for conducting the RPA for this non-priority pollutant constituent.

USEPA's September 2010 NPDES Permit Writer's Manual, page 6-30, states, "State implementation procedures might allow, or even require, a permit writer to determine reasonable potential through a qualitative assessment process without using available facility-specific effluent monitoring data or when such data are not available...A permitting authority might also determine that WQBELs are required for specific pollutants for all facilities that exhibit certain operational or discharge characteristics (e.g., WQBELs for pathogens in all permits for POTWs discharging to contact recreational waters)." USEPA's TSD also recommends that factors other than effluent data should be considered in the RPA, "When determining whether or not a discharge causes, has the reasonable potential to cause, or contributes to an excursion of a numeric or narrative water quality criterion for individual toxicants or for toxicity, the regulatory authority can use a variety of factors and information where facility-specific effluent monitoring data are unavailable. These factors also should be considered with available effluent monitoring data." With regard to POTWs, USEPA recommends that, "POTWs should also be characterized for the possibility of chlorine and ammonia problems." (TSD, p. 50)

However, per Section 1.3, Step 7, of the SIP, the facility type may be used as information to aid in determining if a water quality based effluent limitation is required. The Discharger Facility is a POTW that treats domestic wastewater. Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. The Discharger does currently use nitrification to remove ammonia from the waste stream; however, if inadequate or incomplete nitrification may result in the discharge of ammonia to the receiving stream. Ammonia is known to cause toxicity to aquatic organisms in surface waters. Discharges of ammonia in concentrations that produce detrimental physiological responses to human, plant, animal, or aquatic life would violate the Basin Plan narrative toxicity objective. Although the Discharger nitrifies the discharge, inadequate or incomplete nitrification creates the potential for ammonia to be discharged and provides the basis for the discharge to have a reasonable potential to cause or contribute to an in-stream excursion above the NAWQC. Therefore, the Central Valley Water Board finds the discharge has reasonable potential for ammonia and WQBELs are required.

The Discharger requested in the ROWD that monitoring data collected in December 2008 through January 2009 not be used for the RPA or

WQBEL calculations. In a 23 January 2009 letter, the Discharger indicated that the elevated ammonia concentrations observed during this period were caused by toxicity that inhibited nitrification, but went unnoticed until sample results were received on 16 January 2009. Therefore, these results are not representative of effluent quality when the Facility is properly operated. Excluding monitoring data from December 2008 through January 2009, the maximum effluent concentration for ammonia was 1.8 µg/L. ~~Therefore, based on monitoring results, ammonia in the discharge does not demonstrate a reasonable potential to cause or contribute to an in-stream excursion above the water quality criteria.~~

**(b)(c) WQBELs.** Applying 40 CFR section 122.44(d)(1)(vi)(B), effluent limitations for ammonia are included in this Order and are based on U.S. EPA's Ambient Water Quality Criteria for the protection of the beneficial use of freshwater aquatic habitat. The Central Valley Water Board calculates WQBELs in accordance with SIP procedures for non-CTR constituents, and ammonia is a non-CTR constituent. The SIP procedure assumes a 4-day averaging period for calculating the long-term average discharge condition (LTA). However, USEPA recommends modifying the procedure for calculating permit limits for ammonia using a 30-day averaging period for the calculation of the LTA corresponding to the 30-day CCC. Therefore, while the LTAs corresponding to the acute and 4-day chronic criteria were calculated according to SIP procedures, the LTA corresponding to the 30-day CCC was calculated assuming a 30-day averaging period. The lowest LTA representing the acute, 4-day CCC, and 30-day CCC is then selected for deriving the AMEL and the MDEL. The remainder of the WQBEL calculation for ammonia was performed according to the SIP procedures. This Order contains a final AMEL and MDEL for ammonia of 1.2 mg/L and 3.1 mg/L, respectively, based on the NAWQC (acute criterion).

**(e)(d) Plant Performance and Attainability.** Monitoring data indicates that the effluent exceeded the applicable AMEL once and did not exceed the applicable MDEL based on 200 samples collected between September 2007 and January 2012. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

### iii. Bis (2-ethylhexyl) phthalate

- (a) **WQO.** The CTR includes a criterion of 1.8 µg/L for bis (2-ethylhexyl) phthalate for the protection of human health for waters from which both water and organisms are consumed.
- (b) **RPA Results.** Bis (2-ethylhexyl) phthalate was detected in five of 29 samples collected between September 2007 and January 2012, with an MEC of 5.6 µg/L (MDL 1.4 µg/L, RL 5 µg/L). Bis (2-ethylhexyl) phthalate was not detected in the upstream receiving water based on four samples collected between September 2007 and January 2012 (minimum MDL 1.1 µg/L, minimum RL 1.5 µg/L). Bis (2-ethylhexyl) phthalate is a common contaminant of sample containers, sampling apparatus, and analytical equipment, and sources of the detected bis (2-ethylhexyl) phthalate may be from plastics used for sampling or analytical equipment. The Discharger indicated in the ROWD that they believe the detections may be associated with contamination during sampling and analysis. The Discharger is under contract to a single commercial laboratory for the analysis of bis (2-ethylhexyl) phthalate and does not have any evidence to indicate that the infrequent constituent detections have been errant results. The Discharger has directed their contract laboratory to use clean sampling and analysis procedures and intends to solicit services from a new laboratory that is able to provide improved analytical methods at the earliest contractual opportunity. In the absence of evidence that the source of the detected samples is laboratory error, the Central Valley Water Board concludes that bis (2-ethylhexyl) phthalate in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the CTR criterion for the protection of human health.
- (c) **WQBELS.** This Order contains a final AMEL and MDEL for bis (2-ethylhexyl) phthalate of 1.8 µg/L and 3.6 µg/L, respectively, based on the CTR criterion for the protection of human health.
- (d) **Plant Performance and Attainability.** The Discharger has stated that the Facility can consistently comply. Analysis of the effluent data shows that the MEC of 5.6 µg/L is greater than with the applicable WQBELS for bis (2-ethylhexyl) phthalate. Time Schedule Order (TSO) No. R5-2010-0030-01 provides a compliance schedule to achieve compliance with the final effluent limitations for bis (2-ethylhexyl) phthalate by 1 June 2013. Consistent with TSO No. R5-2010-0030-01, a compliance time schedule for compliance with the bis (2-ethylhexyl) phthalate effluent limitations is established in TSO No. R5-2013-XXXX, with compliance with final effluent limitations required by 1 June 2013.

#### iv. Biochemical Oxygen Demand/Total Suspended Solids

(a) **WQO.** Federal regulations, 40 CFR Part 133, establish the minimum weekly and monthly average level of effluent quality attainable by secondary treatment for BOD<sub>5</sub> and TSS. Tertiary treatment is necessary to protect the beneficial uses of the receiving stream. The principal design parameter for wastewater treatment plants is the daily BOD<sub>5</sub> and TSS loading rates and the corresponding removal rate of the system. In applying 40 CFR Part 133, the application of tertiary treatment processes results in the ability to achieve lower levels for BOD<sub>5</sub> and TSS than the secondary standards currently prescribed; the minimum 30-day average, weekly average, and maximum daily level of effluent quality attainable by a tertiary system are 10 mg/L, 15 mg/L, and 30 mg/L, respectively.

(b) **RPA Results.** Federal regulations at 40 C.F.R. §122.44(d)(1)(i) requires that, "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality." ~~Per Section 1.3, Step 7, of the SIP, the facility type may be used as information to aid in determining if a water quality based effluent limitation is required. BOD<sub>5</sub> is a measure of the amount of oxygen used in the biochemical oxidation of organic matter. BOD<sub>5</sub> and TSS are oxygen depleting substances that can lower dissolved oxygen levels in the receiving water causing toxicity to fish if not controlled; such discharges would violate the Basin Plan narrative toxicity objective. BOD<sub>5</sub> and TSS are inherent in the wastestream of a POTW. The Discharger is a POTW that treats domestic wastewater. The principal design parameter for wastewater treatment plants is the daily BOD<sub>5</sub> and TSS loading rates and the corresponding removal rate of the system. The application of tertiary treatment processes results in the ability to achieve lower levels for BOD<sub>5</sub> and TSS than the secondary standards currently prescribed as technology-based effluent limits. Levels of BOD<sub>5</sub> and TSS discharged without adequate treatment are toxic and must be controlled. Standard secondary wastewater treatment does not adequately remove BOD<sub>5</sub> and TSS to levels that are protective of fish and other aquatic life. Therefore it is appropriate to control BOD<sub>5</sub> and TSS for the protection of aquatic life by protecting water quality. This Order contains effluent limitations for BOD<sub>5</sub> and TSS that are determined based on the capability of a tertiary system. In addition to the average weekly and average monthly effluent limitations, a daily maximum effluent limitation for BOD<sub>5</sub> and TSS is also included in the Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities. The secondary and tertiary treatment standards for BOD<sub>5</sub> and TSS are indicators of the effectiveness of the treatment processes.~~

(c) **WQBELs.** This Order contains AMELs and AWELs for BOD<sub>5</sub> and TSS of 10 mg/L and 15 mg/L respectively, which is technically based on the capability of a tertiary system. In addition, a daily maximum effluent limitation for BOD<sub>5</sub> and TSS at 30 mg/L is included in this Order to ensure that the treatment works are not organically overloaded and operate in accordance with design capabilities.

(d) **Plant Attainability.** Analysis of the effluent data shows that the Facility can meet these WQBELs.

#### v. Mercury

(a) **WQO.** The current NAWQC for protection of freshwater aquatic life, continuous concentration, for mercury is 0.77 µg/L (30-day average, chronic criteria). The CTR contains a human health criterion (based on a threshold dose level causing neurological effects in infants) of 0.050 µg/L for waters from which both water and aquatic organisms are consumed. Both values are controversial and subject to change. In 40 CFR Part 131, USEPA acknowledges that the human health criteria may not be protective of some aquatic or endangered species and that “...*more stringent mercury limits may be determined and implemented through use of the State’s narrative criterion.*” In the CTR, USEPA reserved the mercury criteria for freshwater and aquatic life and may adopt new criteria at a later date.

(b) **RPA Results.** The maximum observed effluent mercury concentration was 0.0016 µg/L. Mercury bioaccumulates in fish tissue and, therefore, the discharge of mercury to the receiving water may contribute to exceedances of the narrative toxicity objective and impact beneficial uses. The discharge of mercury to surface waters in the Central Valley draining to the Sacramento San Joaquin Delta are being limited in order to protect the beneficial uses of the Delta.

**WQBELs.** This Order retains the performance-based mass effluent limitation of 0.0039 lbs/month for mercury from Order No. R5-2007-0069. This limitation is based on maintaining the mercury loading at the current level until a TMDL can be established and USEPA develops mercury standards that are protective of human health. If USEPA develops new water quality standards for mercury, this permit may be reopened and the effluent limitations adjusted.

(c) **Plant Performance and Attainability.** The mass limitations for mercury are based on the performance of the treatment system. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

#### vi. Nitrate plus Nitrite

- (a) **WQO.** DPH has adopted Primary MCLs for the protection of human health for nitrite and nitrate that are equal to 1 mg/L and 10 mg/L (measured as nitrogen), respectively. DPH has also adopted a primary MCL of 10 mg/L for the sum of nitrate and nitrite, measured as nitrogen.

USEPA has developed a primary MCL and an MCL goal of 1 mg/L for nitrite (as nitrogen). For nitrate, USEPA has developed Drinking Water Standards (10 mg/L as Primary MCL) and NAWQC for protection of human health (10 mg/L for non-cancer health effects). Recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms.

- (b) **RPA Results.** Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate. Denitrification is a process that converts nitrate to nitrite or nitric oxide and then to nitrous oxide or nitrogen gas, which is then released to the atmosphere. Nitrate and nitrite are known to cause adverse health effects in humans. Inadequate or incomplete denitrification may result in the discharge of nitrate and/or nitrite to the receiving stream. The conversion of ammonia to nitrites and the conversion of nitrites to nitrates present a reasonable potential for the discharge to cause or contribute to an in-stream excursion above the Primary MCLs for nitrite and nitrate. The maximum effluent concentration for nitrate was 9.3 mg/L based on 242 samples collected between September 2007 and January 2012. Monitoring data for nitrite is not available.

- (c) **WQBELs.** Order No. R5-2007-0069 contains a final AMEL for nitrate of 10 mg/L, based on the protection of the Basin Plan's narrative chemical constituents objective. The discharge may contain nitrite in concentrations that do not exceed the Primary MCL of 1 mg/L for nitrite. However, when the nitrite concentration in the discharge is added to the maximum effluent concentration for nitrate, a reasonable potential exists that nitrate plus nitrite may exceed the Primary MCL of 10 mg/L for nitrate plus nitrite. This Order does not retain the effluent limitation for nitrate. However, to control the discharge of nitrate plus nitrite, comply with the Primary MCL, and be consistent with current permitting practices, this Order does contain a final AMEL for nitrate plus nitrite of 10 mg/L.

- (d) **Plant Performance and Attainability.** Analysis of the effluent data shows that the maximum effluent concentration of 9.3 µg/L is less than the applicable WQBEL for nitrate. Without effluent data for nitrite, it is uncertain whether the maximum effluent concentration for nitrite complies with the WQBEL for nitrite. The Central Valley Water Board concludes, however, that immediate compliance with the effluent limitation for nitrate plus nitrite is feasible.

## vii. Pathogens



- (a) **WQO.** DPH has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 mL as a 7-day median. As coliform organisms are living and mobile, it is impracticable to quantify an exact number of coliform organisms and to establish weekly average limitations. Instead, coliform organisms are measured as a most probable number and regulated based on a 7-day median limitation.

Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as “...an impoundment of recycled water, in which no limitations are imposed on body-contact water recreational activities.” Title 22 is not directly applicable to surface waters; however, the Central Valley Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by DPH’s reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. The stringent disinfection criteria of Title 22 are appropriate since the undiluted effluent may be used for the irrigation of food crops and/or for body-contact water recreation. Coliform organisms are intended as an indicator of the effectiveness of the entire treatment train and the effectiveness of removing other pathogens.

- (b) **RPA Results.** The beneficial uses of Carson Creek include municipal and domestic supply, water contact recreation, and agricultural irrigation supply, and there is, at times, less than 20:1 dilution. To protect these beneficial uses, the Central Valley Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The method of treatment is not prescribed by this Order; however, wastewater must be treated to a level equivalent to that recommended by DPH.

- (c) **WQBELs.** In accordance with the requirements of Title 22, this Order includes effluent limitations for total coliform organisms of 2.2 MPN/100 mL as a 7-day median; 23 MPN/100 mL, not to be exceeded more than once in a 30-day period; and 240 MPN/100 mL as an instantaneous maximum.

The tertiary treatment process, or equivalent, is capable of reliably treating wastewater to a turbidity level of 2 NTU as a daily average. Failure of the filtration system such that virus removal is impaired would normally result in increased particles in the effluent, which result in higher effluent turbidity. Turbidity has a major advantage for monitoring filter performance. Coliform testing, by comparison, is not conducted continuously and requires several hours, to days, to identify high coliform

concentrations. Therefore, to ensure compliance with the DPH recommended Title 22 disinfection criteria, weekly average specifications are impracticable for turbidity. This Order also includes operational specifications for turbidity of 2 NTU as a daily average; 5 NTU, not to be exceeded more than 5 percent of the time within a 24-hour period; and 10 NTU as an instantaneous maximum.

**(d) Plant Performance and Attainability.** The Facility is designed to provide tertiary treatment. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

**viii. Persistent Chlorinated Hydrocarbon Pesticides**

**(a) WQO.** The Basin Plan requires that no individual pesticides shall be present in concentrations that adversely affect beneficial uses; discharges shall not result in pesticide concentrations in bottom sediments or aquatic life that adversely affect beneficial uses; persistent chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations; and pesticide concentrations shall not exceed those allowable by applicable antidegradation policies. Persistent chlorinated hydrocarbon pesticides include aldrin; alpha-BHC; beta-BHC; gamma-BHC; delta-BHC; chlordane; 4,4-DDT; 4,4-DDE; 4,4-DDD; dieldrin; alpha-endosulfan; beta-endosulfan; endosulfan sulfate; endrin; endrin aldehyde; heptachlor; heptachlor epoxide; and toxaphene.

**(b) RPA Results.** Alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide were detected in the effluent in concentrations as high as 0.014 µg/L, 0.06 µg/L, 0.11 µg/L, 0.016 µg/L, respectively. The minimum ML contained in the SIP for each of these four pesticides is 0.01 µg/L. The detection of alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide in the effluent presents a reasonable potential to exceed the Basin Plan objectives for persistent chlorinated hydrocarbon pesticides.

**(c) WQBELs.** Effluent limitations for alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide are included in this Order and are based on the Basin Plan objective of no detectable concentrations of chlorinated hydrocarbon pesticides.

**(d) Plant Performance and Attainability.** The Discharger has stated ~~Analysis of the effluent data indicates that the Facility cannot consistently comply with the applicable WQBELs for alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide. TSO No. R5-2010-0030-01 provides a compliance schedule to achieve compliance with the final effluent limitations for persistent chlorinated hydrocarbon pesticides by 1 June 2013. Consistent with TSO No. R5-2010-0030-01, a compliance time schedule for compliance with the alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide effluent limitations is established in TSO No. R5-~~

~~2013-XXXX, with compliance with final effluent limitations required by  
1 June 2013.~~

**ix. pH**

**(a) WQO.** The Basin Plan includes a water quality objective for surface waters (except for Goose Lake) that the “...*pH shall not be depressed below 6.5 nor raised above 8.5.*”

**(b) RPA Results.** The discharge of municipal wastewater has a reasonable potential to cause or contribute to an excursion above the Basin Plan’s numeric objectives for pH.

**(c) WQBELs.** An effluent limitation for pH of 6.5 as an instantaneous minimum is included in this Order based on protection of the Basin Plan objective for pH. In the ROWD, the Discharger requested an instantaneous maximum pH limitation of 8.3 which reflects a level consistently achievable by the Facility. The maximum effluent concentration for pH was 8.2 based on 682 samples collected between September 2007 and January 2012. Therefore, at the request of the Discharger, this Order establishes a more stringent instantaneous maximum pH limitation of 8.3.

**(d) Plant Performance and Attainability.** Analysis of the effluent data shows that the pH of the effluent is consistently between 6.7 to 8.2. The Central Valley Water Board concludes, therefore, that immediate compliance with these effluent limitations is feasible.

**4. WQBEL Calculations**

**a.** This Order includes WQBELs for alpha-BHC, aluminum, ammonia, bis (2-ethylhexyl) phthalate, BOD<sub>5</sub>, endrin aldehyde, heptachlor, heptachlor epoxide, mercury, nitrate plus nitrite, pH, total coliform organisms, and TSS. The general methodology for calculating WQBELs based on the different criteria/objectives is described in subsections IV.C.4.b through e, below. See Attachment H for the WQBEL calculations.

**b. Effluent Concentration Allowance.** For each water quality criterion/objective, the ECA is calculated using the following steady-state mass balance equation from Section 1.4 of the SIP:

$$\begin{array}{ll} ECA = C + D(C - B) & \text{where } C > B, \text{ and} \\ ECA = C & \text{where } C \leq B \end{array}$$

where:

ECA = effluent concentration allowance  
D = dilution credit  
C = the priority pollutant criterion/objective

$B$  = the ambient background concentration.

According to the SIP, the ambient background concentration (B) in the equation above shall be the observed maximum with the exception that an ECA calculated from a priority pollutant criterion/objective that is intended to protect human health from carcinogenic effects shall use the arithmetic mean concentration of the ambient background samples. For ECAs based on MCLs, which implement the Basin Plan's chemical constituents objective and are applied as annual averages, an arithmetic mean is also used for B due to the long-term basis of the criteria.

- c. **Basin Plan Objectives and MCLs.** For WQBELs based on site-specific numeric Basin Plan objectives or MCLs, the effluent limitations are applied directly as the ECA as either an MDEL, AMEL, or average annual effluent limitations, depending on the averaging period of the objective.
- d. **Aquatic Toxicity Criteria.** WQBELs based on acute and chronic aquatic toxicity criteria are calculated in accordance with Section 1.4 of the SIP. The ECAs are converted to equivalent long-term averages (i.e.,  $LTA_{acute}$  and  $LTA_{chronic}$ ) using statistical multipliers and the lowest LTA is used to calculate the AMEL and MDEL using additional statistical multipliers.
- e. **Human Health Criteria.** WQBELs based on human health criteria, are also calculated in accordance with Section 1.4 of the SIP. The ECAs are set equal to the AMEL and a statistical multiplier was used to calculate the MDEL.

$$AMEL = mult_{AMEL} \left[ \min \left( \overbrace{M_A ECA_{acute}}^{LTA_{acute}}, M_C ECA_{chronic} \right) \right]$$

$$MDEL = mult_{MDEL} \left[ \min \left( M_A ECA_{acute}, \underbrace{M_C ECA_{chronic}}_{LTA_{chronic}} \right) \right]$$

$$MDEL_{HH} = \left( \frac{mult_{MDEL}}{mult_{AMEL}} \right) AMEL_{HH}$$

where:

$mult_{AMEL}$  = statistical multiplier converting minimum LTA to AMEL

$mult_{MDEL}$  = statistical multiplier converting minimum LTA to MDEL

$M_A$  = statistical multiplier converting acute ECA to  $LTA_{acute}$

$M_C$  = statistical multiplier converting chronic ECA to  $LTA_{chronic}$

## Summary of Water Quality-Based Effluent Limitations Discharge Point No. 001

**Table F-10. Summary of Water Quality-Based Effluent Limitations**

Parameter	Units	Effluent Limitations				
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum
Conventional Pollutants						
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	30	--	--
	lbs/day <sup>1</sup>	334	500	1,000	--	--
pH	standard units	--	--	--	6.5	8.3
Total Suspended Solids	mg/L	10	15	30	--	--
	lbs/day <sup>1</sup>	334	500	1,000	--	--
Priority Pollutants						
alpha-BHC	µg/L	--	--	--	--	ND <sup>2</sup>
Bis (2-ethylhexyl) Phthalate	µg/L	1.8	--	3.6	--	--
Endrin aldehyde	µg/L	--	--	--	--	ND <sup>2</sup>
Heptachlor	µg/L	--	--	--	--	ND <sup>2</sup>
Heptachlor epoxide	µg/L	--	--	--	--	ND <sup>2</sup>
Mercury, Total Recoverable	lbs/month	0.0039 <sup>3</sup>	--	--	--	--
Non-Conventional Pollutants						
Aluminum, Total Recoverable	µg/L	200 <sup>4</sup>	--	--	--	--
Ammonia Nitrogen, Total (as N)	µg/L	1.2	--	3.1	--	--
	lbs/day	40	--	103	--	--
Nitrate plus Nitrite (as N)	mg/L	10	--	--	--	--
Total Coliform Organisms	MPN/100 mL	--	2.2 <sup>5</sup>	23 <sup>6</sup>	--	240

<sup>1</sup> Mass-based effluent limitations are based on a permitted average dry weather flow of 4.0 MGD.

<sup>2</sup> ND indicates non-detect. See section VII.F. of this permit for the protocol for evaluating compliance with the ND effluent limitation.

<sup>3</sup> The total monthly mass discharge of total mercury shall not exceed 0.0039 lbs/month.

<sup>4</sup> Applied as an annual average effluent limitation.

<sup>5</sup> Applied as a 7-day median effluent limitation.

<sup>6</sup> Not to be exceeded more than once in any 30-day period.

### 5. Whole Effluent Toxicity (WET)

For compliance with the Basin Plan's narrative toxicity objective, this Order requires the Discharger to conduct whole effluent toxicity testing for acute and chronic toxicity, as specified in the Monitoring and Reporting Program (Attachment E, section V). This Order also contains effluent limitations for acute toxicity and

requires the Discharger to implement best management practices to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity.

- a. Acute Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at page III-8.00) The Basin Plan also states that, “*...effluent limits based upon acute biotoxicity tests of effluents will be prescribed where appropriate...*”. USEPA Region 9 provided guidance for the development of acute toxicity effluent limitations in the absence of numeric water quality objectives for toxicity in its document titled "Guidance for NPDES Permit Issuance", dated February 1994. In section B.2. "Toxicity Requirements" (pgs. 14-15) it states that, "*In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc.*" Consistent with Order No. R5-2007-0069, effluent limitations for acute toxicity have been included in this Order as follows:

**Acute Toxicity.** Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:

Minimum for any one bioassay----- 70%  
Median for any three consecutive bioassays ----- 90%

- b. Chronic Aquatic Toxicity.** The Basin Plan contains a narrative toxicity objective that states, “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at page III-8.00.) Based on chronic WET testing performed by the Discharger from December 2008 through April 2011, the discharge has reasonable potential to cause or contribute to an in-stream excursion of the Basin Plan’s narrative toxicity objective, as shown in Table F-11 below.

**Table F-11. Whole Effluent Chronic Toxicity Testing Results**

Date	Fathead Minnow		Water Flea		Green Algae
	<i>Pimephales promelas</i>		<i>Ceriodaphnia dubia</i>		<i>Selenastrum capricornutum</i>
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
December 2008	1	1	1	1	1
February 2009	1	1	1	1	1
April 2009	1	1	1	1	1

Date	Fathead Minnow		Water Flea		Green Algae
	<i>Pimephales promelas</i>		<i>Ceriodaphnia dubia</i>		<i>Selenastrum capricornutum</i>
	Survival (TUc)	Growth (TUc)	Survival (TUc)	Reproduction (TUc)	Growth (TUc)
December 2009	1	1	1	1	1
February 2010	1	1	1	1	1
April 2010	1	1	1	1	1
December 2010	1	1	1	1	1
January 2011	1	>1 <sup>1</sup>	1	1	1
8 February 2011		1	1	1	1
15 February 2011		1	1	1	1
1 March 2011		1	1	1	1
15 March 2011		1	1	1	1
April 2011	1	1	1	1	1

<sup>1</sup> Growth in effluent was significantly reduced relative to the laboratory control, but was not significantly reduced relative to the receiving water (Carson Creek).

No dilution has been granted for the chronic condition. Therefore, chronic toxicity testing results exceeding 1 chronic toxicity unit (TUc) demonstrates the discharge has a reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative toxicity objective.

Numeric chronic WET effluent limitations have not been included in this Order. The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region<sup>1</sup> that contained numeric chronic toxicity effluent limitations. To address the petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity control provisions in the SIP. The State Water Board states the following in WQO 2003-012, *"In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of

<sup>1</sup> In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)

effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process. Since the toxicity control provisions in the SIP are under revision it is infeasible to develop numeric effluent limitations for chronic toxicity. Therefore, this Order requires that the Discharger meet best management practices for compliance with the Basin Plan's narrative toxicity objective, as allowed under 40 CFR 122.44(k).

To ensure compliance with the Basin Plan's narrative toxicity objective, the Discharger is required to conduct chronic WET testing, as specified in the Monitoring and Reporting Program (Attachment E section V.). Furthermore, the Special Provision contained at VI.C.2.a. of this Order requires the Discharger to investigate the causes of, and identify and implement corrective actions to reduce or eliminate effluent toxicity. If the discharge demonstrates toxicity exceeding the numeric toxicity monitoring trigger, the Discharger is required to initiate a Toxicity Reduction Evaluation (TRE) in accordance with an approved TRE workplan. The numeric toxicity monitoring trigger is not an effluent limitation; it is the toxicity threshold at which the Discharger is required to perform accelerated chronic toxicity monitoring, as well as, the threshold to initiate a TRE if effluent toxicity has been demonstrated.

## **D. Final Effluent Limitations**

### **1. Mass-based Effluent Limitations**

40 CFR 122.45(f)(1) requires effluent limitations be expressed in terms of mass, with some exceptions, and 40 CFR 122.45(f)(2) allows pollutants that are limited in terms of mass to additionally be limited in terms of other units of measurement. This Order includes effluent limitations expressed in terms of mass and concentration. In addition, pursuant to the exceptions to mass limitations provided in 40 CFR 122.45(f)(1), some effluent limitations are not expressed in terms of mass, such as pH and temperature, and when the applicable standards are expressed in terms of concentration (e.g., CTR criteria and MCLs) and mass limitations are not necessary to protect the beneficial uses of the receiving water.

Mass-based effluent limitations have been established in this Order for ammonia, BOD<sub>5</sub>, and TSS because they are oxygen-demanding substances. A mass-based effluent limitation has been established for mercury because it is a bioaccumulative pollutant. Mass-based effluent limitations were calculated based upon the design flow (average dry weather flow) permitted in section IV.A.1.f of this Order. Except for the pollutants listed above, mass-based effluent limitations are not included in this Order for pollutant parameters for which effluent limitations are based on water quality objectives and criteria that are concentration-based.

### **2. Averaging Periods for Effluent Limitations**

40 CFR 122.45 (d) requires average weekly and average monthly discharge limitations for POTWs unless impracticable. However, for toxic pollutants and



pollutant parameters in water quality permitting, USEPA recommends the use of a maximum daily effluent limitation in lieu of average weekly effluent limitations for two reasons. *“First, the basis for the 7-day average for POTWs derives from the secondary treatment requirements. This basis is not related to the need for assuring achievement of water quality standards. Second, a 7-day average, which could comprise up to seven or more daily samples, could average out peak toxic concentrations and therefore the discharge’s potential for causing acute toxic effects would be missed.”* (TSD, pg. 96) This Order uses maximum daily effluent limitations in lieu of average weekly effluent limitations for ammonia and bis (2-ethylhexyl) phthalate, as recommended by the TSD for the achievement of water quality standards and for the protection of the beneficial uses of the receiving stream. Furthermore, for alpha-BHC, BOD<sub>5</sub>, endrin aldehyde, heptachlor, heptachlor epoxide pH, total coliform organisms, and TSS, weekly average effluent limitations have been replaced or supplemented with effluent limitations utilizing shorter averaging periods. The rationale for using shorter averaging periods for these constituents is discussed in section IV.C.3 of this Fact Sheet.

For effluent limitations based on Primary and Secondary MCLs, except nitrate plus nitrite, this Order includes annual average effluent limitations. The Primary and Secondary MCLs are drinking water standards contained in Title 22 of the California Code of Regulations. Title 22 requires compliance with these standards on an annual average basis (except for nitrate plus nitrite), when sampling at least quarterly. Since it is necessary to determine compliance on an annual average basis, it is impracticable to calculate average weekly and average monthly effluent limitations.

### 3. Satisfaction of Anti-Backsliding Requirements

The CWA specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limitation is justified based on exceptions to the anti-backsliding provisions contained in CWA sections 402(o) or 303(d)(4), or, where applicable, 40 CFR 122.44(l).

The effluent limitations in this Order are at least as stringent as the effluent limitations in Order R5-2007-0069, with the exception of aluminum, bis (2-chloroethyl) ether, carbon tetrachloride, chlorine residual, copper, cyanide, dibromochloromethane, dichlorobromomethane, electrical conductivity, iron, manganese, nitrate, persistent chlorinated hydrocarbon pesticides (except alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide), settleable solids, total trihalomethanes, and zinc. The effluent limitations for these pollutants are less stringent than those in Order R5 2007-0069 as described below. This relaxation of effluent limitations is consistent with the anti-backsliding requirements of the CWA and federal regulations.

- a. **CWA sections 402(o)(1) and 303(d)(4).** CWA section 402(o)(1) specifies that, in the case of effluent limitations established on the basis of CWA section 301(b)(1)(C) (i.e., WQBELs), a permit may not be renewed, reissued, or modified to contain effluent limitations which are less stringent than the comparable

effluent limitations in the previous permit except in compliance with CWA section 303(d)(4). The effluent limitations for aluminum, bis (2-chloroethyl) ether, carbon tetrachloride, chlorine residual, copper, cyanide, dibromochloromethane, dichlorobromomethane, electrical conductivity, iron, manganese, nitrate, persistent chlorinated hydrocarbon pesticides (except alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide), settleable solids, total trihalomethanes, and zinc established in Order R5-2007-0069 are WQBELs and may be relaxed if the requirements of CWA section 303(d)(4) are satisfied.

CWA section 303(d)(4) has two parts: paragraph (A) which applies to nonattainment waters and paragraph (B) which applies to attainment waters.

- i. Non-Attainment Waters.** For waters where standards are not attained, CWA section 304(d)(4)(A) specifies that any effluent limitation based on a TMDL or other WLA may be revised only if the cumulative effect of all such revised effluent limits based on such TMDLs or WLAs will assure the attainment of such water quality standards. The 303(d) listings applicable to Carson Creek, as described in section III.D.1 of this Fact Sheet, include aluminum and manganese. TMDLs and WLAs for aluminum and manganese have not been adopted. The 303(d) listing for aluminum and manganese are based on Secondary MCLs, which are the drinking water standard for human health contained in Title 22 of the California Code of Regulations.

The Secondary MCL for aluminum is 200 µg/L. The effluent limitations for aluminum in Order No. R5-2007-0069 were based on the recommended aquatic life NAWQC chronic criterion. The Central Valley Water Board has determined that the NAWQC chronic criterion is not applicable to Carson Creek, and the relaxed effluent limitations in this Order are based on the Secondary MCL. Thus, the relaxed effluent limitation for aluminum will assure the Facility will not contribute to the impairment.

The Secondary MCL for manganese is 50 µg/L. For manganese, new receiving water and effluent monitoring data indicates the Facility will not contribute to exceedances of the water quality standards. This Order does not retain the effluent limitation for managanese in Order No. R5-2007-0069.

- ii. Attainment Waters.** For attainment waters, CWA section 303(d)(4)(B) specifies that a limitation based on a water quality standard may be relaxed where the action is consistent with the antidegradation policy. Section 303(d) of the CWA requires identification of water bodies that do not meet, or are not expected to meet, water quality standards. The 303(d) list identifies water bodies deemed impaired (nonattainment) for specific pollutants. The Central Valley Water Board regularly updates the 303(d) list. The USEPA approved the current 303(d) list on 11 October 2011, officially acknowledging impaired water bodies and the pollutants of concern. Carson Creek is listed on the 303(d) list as an impaired waterbody for aluminum and manganese, as described in section III.D.1 of this Fact Sheet. Carson Creek is not on the 303(d) list as an impaired waterbody for bis (2-chloroethyl) ether, carbon

tetrachloride, chlorine residual, copper, cyanide, dibromochloromethane, dichlorobromomethane, electrical conductivity, iron, nitrate (mass), persistent chlorinated hydrocarbon pesticides (except alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide), settleable solids, total trihalomethanes, or zinc. Thus, the receiving water is an attainment water for bis (2-chloroethyl) ether, carbon tetrachloride, chlorine residual, copper, cyanide, dibromochloromethane, dichlorobromomethane, electrical conductivity, iron, nitrate (mass), persistent chlorinated hydrocarbon pesticides (except alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide), settleable solids, total trihalomethanes, and zinc. As discussed in section IV.D.4, the removal of WQBELs for these pollutants is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Therefore, the modifications to these effluent limitations do not violate anti-backsliding requirements. Removal of the effluent limitations for bis (2-chloroethyl) ether is further described below.

All effluent data for bis (2-chloroethyl) ether for the Facility do not exceed the WQBELs established in previous Order R5-2007-0069, demonstrating the Discharger can comply with the WQBELs without additional treatment or controls. The removal of the WQBELs for bis (2-chloroethyl) ether will not result in an increase in pollutant concentration or loading, a decrease in the level of treatment or control, or a reduction of water quality. Therefore, the removal of these WQBELs complies with antidegradation requirements and do not violate anti-backsliding requirements.

Order R5-2007-0069 established final mass-based effluent limitations for nitrate. 40 CFR 122.45(f)(1)(ii) states that mass limitations are not required when applicable standards and limitations are expressed in terms of other units of measurement. This Order established a more stringent effluent limitation as nitrate plus nitrite based on water quality standards and objectives, which are expressed in terms of concentration. Pursuant to 40 CFR 122.25(f)(1)(ii), expressing the effluent limitations in terms of concentration is in accordance with Federal Regulations. Compliance with the concentration-based limit will ensure that significantly less mass of nitrate is discharged to the receiving water. Discontinuing mass-based effluent limitations for nitrate is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16. Any impact on existing water quality will be insignificant. Therefore, the modifications to this effluent limitation does not violate anti-backsliding requirements.

- b. CWA section 402(o)(2).** CWA section 402(o)(2) provides several exceptions to the anti-backsliding regulations. CWA 402(o)(2)(B)(i) allows a renewed, reissued, or modified permit to contain a less stringent effluent limitation for a pollutant if information is available which was not available at the time of permit issuance (other than revised regulations, guidance, or test methods) and which would have justified the application of a less stringent effluent limitation at the time of permit issuance.

As described further in section IV.C.3.b of this Fact Sheet, updated information that was not available at the time Order R5-2007-0069 was issued indicates that carbon tetrachloride, chlorine residual, copper, cyanide, dibromochloromethane, dichlorobromomethane, electrical conductivity, iron, manganese, persistent chlorinated hydrocarbon pesticides (except alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide), settleable solids, total trihalomethanes, and zinc do not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives in the receiving water. As described further in section IV.C.3.c. of this Fact Sheet, updated information that was not available at the time Order R5-2007-0069 was issued indicates that removal of the effluent limitations for bis (2-chloroethyl) ether is appropriate. Additionally, as described further in section IV.C.3.d. of this Fact Sheet, updated information that was not available at the time Order R5-2007-0069 was issued indicates that less stringent effluent limitations for aluminum are appropriate. The updated information that supports the relaxation or removal of effluent limitations for these constituents includes the following:

- i. **Aluminum.** Receiving water monitoring data for water quality characteristics (e.g. pH and hardness) collected between September 2007 and January 2012, as well as local environmental conditions and aluminum toxicity study results indicates that the recommend NAWQC chronic criterion of 87 µg/L is not applicable to Carson Creek. The relaxed effluent limitations in this Order are based on the Secondary MCL of 200 µg/L.
- ii. **Bis (2-chloroethyl) Ether.** From 29 effluent samples and 4 receiving water samples collected between September 2007 and January 2012, bis (2-chloroethyl) ether was not detected in the effluent with a minimum MDL of 0.46 µg/L and in the receiving water with a minimum MDL of 1 µg/L. Furthermore, the data that was used to determine reasonable potential during the previous permit cycle was examined. In the existing NPDES Permit reasonable potential was based on one detection, on 20 June 2001, measured at 3.2 µg/L, out of 15 total samples. All other samples from March 2001 through May 2006 were non-detect, including 4 receiving water samples collected between March 2001 and January 2002. In total, since 2001, there have been 44 effluent samples with only one detection. Based on effluent monitoring data set for the past ten years, the detection on 20 June 2001 is an outlier and not representative of the effluent discharge. However, the CTR criterion for bis (2-chloroethyl) ether is 0.031 µg/L, which is below the MDLs. Therefore, in accordance with the SIP section 1.3, Step 8, since the lowest MDL for the samples is greater than the CTR water quality criterion, monitoring is required in place of WQBELs. The removal of the WQBELs will not result in an increase in the pollutant concentration or loading, a decrease in the level of treatment or control, or a reduction of water quality.
- iii. **Carbon Tetrachloride.** Effluent and receiving water monitoring data collected between September 2007 and January 2012 indicates that the

discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR human health criterion.

- iv. **Chlorine Residual.** The Discharger converted from chlorine disinfection to UV disinfection in May 2010.
- v. **Copper.** The Discharger submitted an *El Dorado Hills Wastewater Treatment Plant Copper Water-Effect Ratio Study* (Robertson-Bryan, Inc.) dated February 2008 supporting application of a WER for total copper of 8.05. The Discharger conducted the study per USEPA's *Streamlined Water-Effect Ratio Procedure for Discharges of Copper* (EPA-822-R-01-005). Effluent and receiving water monitoring data collected between September 2007 and January 2012 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR aquatic life criterion calculated using a WER of 8.05.
- vi. **Cyanide.** Cyanide is a chlorine disinfection byproduct and chlorine disinfection was discontinued in May 2010. Effluent monitoring data collected since May 2010 and receiving water monitoring data collected between September 2007 and January 2012 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR human health criterion.
- vii. **Dibromochloromethane.** Dibromochloromethane is a chlorine disinfection byproduct. The Discharger converted from chlorine disinfection to UV disinfection in May 2010. Effluent monitoring data collected since May 2010 and receiving water monitoring data collected between September 2007 and January 2012 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR human health criterion.
- viii. **Dichlorobromomethane.** Dichlorobromomethane is a chlorine disinfection byproduct. The Discharger converted from chlorine disinfection to UV disinfection in May 2010. Effluent monitoring data collected since May 2010 and receiving water monitoring data collected between September 2007 and January 2012 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR human health criterion.
- ix. **Electrical Conductivity.** The Discharger submitted a salinity evaluation and minimization plan on 14 May 2008, which was approved on 17 December 2008, proposing that conversion from chlorine disinfection to UV disinfection would significantly reduce effluent salinity. The Discharger converted from chlorine disinfection to UV disinfection in May 2010. Consistent with the salinity evaluation and minimization plan, effluent monitoring data collected since May 2010 and receiving water monitoring data collected between September 2007 and January 2012 indicates that the

discharge does not exhibit reasonable potential to cause or contribute to an exceedance of water quality objectives for salinity.

- x. **Iron.** Effluent and receiving water monitoring data collected between September 2007 and January 2012 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.
- xi. **Manganese.** Effluent and receiving water monitoring data collected between September 2007 and January 2012 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Secondary MCL.
- xii. **Persistent Chlorinated Hydrocarbon Pesticides (Except alpha-BHC, Endrin Aldehyde, Heptachlor, and Heptachlor Epoxide).** Except for alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide, effluent and receiving water monitoring data collected between September 2007 and January 2012 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan objective.
- xiii. **Settleable Solids.** Effluent and receiving water monitoring data collected between September 2007 and January 2012 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative objective for settleable material. Additionally, the Discharger provides tertiary treatment and thus settleable solids are not expected to be present in the discharge at concentrations that exhibit reasonable potential to cause or contribute to an exceedance of the Basin Plan's narrative objective for settleable material.
- xiv. **Total Trihalomethanes.** Total trihalomethanes, which include bromoform, chloroform, dibromochloromethane, and dichlorobromomethane, are chlorine disinfection byproducts. The Discharger converted from chlorine disinfection to UV disinfection in May 2010. Effluent monitoring data collected since the Facility's conversion to UV disinfection and receiving water monitoring data collected between September 2007 and January 2012 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the Primary MCL.
- xv. **Zinc.** Effluent and receiving water monitoring data collected between September 2007 and January 2012 indicates that the discharge does not exhibit reasonable potential to cause or contribute to an exceedance of the CTR aquatic life criterion.

Thus, relaxation of effluent limitations for aluminum and removal of the effluent limitations for bis (2-chloroethyl) ether, carbon tetrachloride, chlorine residual, copper, cyanide, dibromochloromethane, dichlorobromomethane, electrical conductivity, iron, manganese, persistent chlorinated hydrocarbon pesticides

(except alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide), settleable solids, total trihalomethanes, and zinc from Order No. R5-2007-0069 is in accordance with CWA section 402(o)(2)(B)(i), which allows for the relaxation and removal of effluent limitations based on information that was not available at the time of permit issuance.

- c. **Turbidity.** Order R5-2007-0069 contained effluent limitations for turbidity. The prior limitations were solely an operational check to ensure the treatment system was functioning properly and could meet the limits for solids and coliform. The prior effluent limitations were not intended to regulate turbidity in the receiving water. Rather, turbidity is an operational parameter to determine proper system functioning and not a WQBEL.

This Order contains operational turbidity specifications to be met in lieu of effluent limitations. The revised Order does not include effluent limitations for turbidity. However, the performance-based specification in this Order is an equivalent limit that is not less stringent, and therefore does not constitute backsliding.

The revised operational specifications for turbidity are the same as the effluent limitations in Order R5-2007-0069. These revisions are consistent with State regulations implementing recycled water requirements. The revision in the turbidity limitation is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution 68-16 because this Order imposes equivalent or more stringent requirements than Order R5-2007-0069 and therefore does not allow degradation.

- d. **Bypass of UV Disinfection System.** Order R5-2007-0069 contained Discharge Prohibition III.E. that stated, *“The Discharger shall not bypass the Ultraviolet (UV) disinfection system once operational prior to discharge to the receiving water except as allowed by Federal Standard Provisions I.G. (Attachment D). “Bypass” for preventive or operational maintenance is not allowed unless it meets the conditions of Section I.G.3 (Attachment D).”* The UV system became operational in May 2010 and all effluent discharges hydraulically must flow through the UV system before being discharged. The Discharger upgraded the Facility and does not have the capability to bypass the UV system, and therefore, the prohibition is no longer applicable and removal of the prohibition does not violate anti-backsliding requirements.

#### 4. Satisfaction of Antidegradation Policy

- a. **Surface Water.** Upon adoption of Order No. R5-2007-0069, the Discharger provided tertiary treatment for a design average dry weather flow of 3.0 MGD. The Discharger also initiated a project to increase the capacity for an average dry weather flow of 4.0 MGD. The upgrade and expansion project was completed in May 2010. The Central Valley Water Board found in Order No. R5-2007-0069 that *“This Order provides for an increase in the volume and mass of pollutants discharged and is consistent with the antidegradation provisions of*

*40 CFR 131.12 and State Water Resources Control Board Resolution 68-16 as updated by State Water Board Administrative Procedure Update (APU) No. 90-004.* Therefore, an increase in the permitted average dry weather discharge flow from 3.0 MGD to 4.0 MGD was authorized under Order No. R5-2007-0069.

This Order does not allow for an increase in flow or mass of pollutants to the receiving water. Therefore, a complete antidegradation analysis is not necessary. The Order requires compliance with applicable federal technology-based standards and with WQBELs where the discharge could have the reasonable potential to cause or contribute to an exceedance of water quality standards. The permitted discharge is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16. Compliance with these requirements will result in the use of best practicable treatment or control of the discharge. The impact on existing water quality will be insignificant.

This Order removes or relaxes existing effluent limitations for aluminum, bis (2-chloroethyl) ether, carbon tetrachloride, chlorine residual, copper, cyanide, dibromochloromethane, dichlorobromomethane, electrical conductivity, iron, manganese, nitrate, persistent chlorinated hydrocarbon pesticides (except alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide), settleable solids, total trihalomethanes, and zinc based on updated monitoring data which demonstrates that the effluent does not cause or contribute to an exceedance of the applicable water quality criteria or objectives in the receiving water. The Central Valley Water Board finds that the relaxation of the effluent limitations does not result in an allowed increase in pollutants or any additional degradation of the receiving water. Thus, the relaxation of effluent limitations is consistent with the antidegradation provisions of 40 CFR 131.12 and State Water Board Resolution No. 68-16.

**b. Groundwater.** The Discharger utilizes an unlined ~~82~~70 million gallon storage reservoir. Secondary treated wastewater from the secondary clarifiers is discharged and stored in the reservoir until it is needed for reclamation at which time it is routed through tertiary filters and UV disinfection prior to discharge through the reclamation distribution system. Domestic wastewater contains constituents such as total dissolved solids, pathogens, and nitrates. Percolation from the unlined reservoir may result in an increase in the concentration of these constituents in groundwater. The increase in the concentration of these constituents in groundwater must be consistent with Resolution No. 68-16. Any increase in pollutant concentrations in groundwater must be shown to be necessary to allow wastewater utility service necessary to accommodate housing and economic expansion in the area and must be consistent with maximum benefit to the people of the State of California. Some degradation of groundwater by the Discharger is consistent with Resolution No. 68-16 provided that:

i. the degradation is limited in extent;



- ii. the degradation after effective source control, treatment, and control is limited to waste constituents typically encountered in municipal wastewater as specified in the groundwater limitations in this Order;
- iii. the Discharger minimizes the degradation by fully implementing, regularly maintaining, and optimally operating best practicable treatment and control (BPTC) measures; and
- iv. the degradation does not result in water quality less than that prescribed in the Basin Plan.

The Discharger has conducted groundwater monitoring for ammonia, total coliform organisms, TDS, and nitrate plus nitrite up gradient and down gradient of the storage reservoir. Based on bi-monthly monitoring conducted between August 2008 and October 2011, discharges to groundwater from the storage reservoir are not contributing to increases in down gradient concentrations of these constituents except for possibly TDS.

The secondary MCL for TDS is 500 mg/L as a recommended level, 1000 mg/L as an upper level, and 1500 mg/L as a short-term maximum. ~~The Central Valley Water Board must determine the applicable numeric limit to implement the narrative objective for the protection of agricultural supply. The most limiting agricultural water quality goal may be as low as 450 mg/L as a long-term average based on Water Quality for Agriculture, Food and Agriculture Organization of the United Nations Irrigation and Drainage Paper No. 29, Rev. 1 (R.S. Ayers and D.W. Westcot, Rome, 1985). Water Quality for Agriculture evaluates the impacts of salinity levels on crop tolerance and yield reduction, and establishes water quality goals that are protective of the agricultural uses. However, the water quality goal is not a site-specific goal, but rather a general measure of TDS that was determined to protect salt-sensitive crops. Only the most salt sensitive crops require irrigation water of 450 mg/L or less to prevent loss of yield. Most other crops can tolerate higher TDS concentrations without harm. Site-specific levels of TDS for the receiving waters, including groundwater, to interpret the narrative chemical constituents objective are necessary.~~

The Central Valley Water Board is currently implementing the CV-SALTS initiative to develop a Basin Plan Amendment that will establish a salt and nitrate Management Plan for the Central Valley. Through this effort the Basin Plan will be amended to define how the narrative water quality objective is to be interpreted for the protection of agricultural use. All studies conducted through this Order to establish an agricultural limit to implement the narrative objective will be reviewed by and consistent with the efforts currently underway by CV-SALTS.

As shown in Table F-11, more recent data indicates a consistent decrease in groundwater TDS concentration in samples obtained from MW-3 is below background and Secondary MCLs. To reduce TDS in the effluent, the Facility changed from chlorination to UV disinfection; however, this change should not

affect the undisinfected secondary treated wastewater stored with the reservoir. Monitoring data for TDS for the secondary treated wastewater discharged into the reservoir is not available, which would have provided the Central Valley Water Board with additional information. But until a salt and nitrate Management Plan is developed for the Central Valley, this Order will continue groundwater monitoring.

**Table F-12. Groundwater Monitoring Data for Total Dissolved Solids**

Parameter	Agricultural WQ Goal <sup>1</sup>	Secondary MCL	n	Up Gradient (Well MW-001)			Down Gradient (Well MW-002)			Down Gradient (Well MW-003)		
				Mean	St. Dev.	99.9 <sup>th</sup> %ile	Mean	St. Dev.	99.9 <sup>th</sup> %ile	Mean	St. Dev.	99.9 <sup>th</sup> %ile
Historical Data Total Dissolved Solids (TDS) (mg/L)	To Be Determined	500, 1000, 1500	19	314	30	370	482	108	619	1,019	988	2,846
Trend Since Dec 2009 (TDS) (mg/L)	" "	" "	11	328	30	372	552	67	621	293	215	772

Additionally, this Order discontinues the specific groundwater limitations and land discharge specifications for total coliform organisms, TDS, nitrate plus nitrite, and pH, but requires that release of waste constituents from any storage, treatment or disposal component associated with the Facility, in combination with other sources, shall not cause the underlying groundwater to contain waste constituents in concentrations greater than background quality or Water Quality Objectives, whichever is greater.

## 5. Stringency of Requirements for Individual Pollutants

This Order contains both technology-based effluent limitations and WQBELs for individual pollutants. The technology-based effluent limitations consist of restrictions on flow and percent removal requirements for BOD<sub>5</sub> and TSS. The WQBELs consist of restrictions on alpha-BHC, aluminum, ammonia, bis (2-ethylhexyl) phthalate, BOD<sub>5</sub>, endrin aldehyde, heptachlor, heptachlor epoxide, mercury, nitrate plus nitrite, pH, total coliform organisms, and TSS. This Order's technology-based pollutant restrictions implement the minimum, applicable federal technology-based requirements. In addition, this Order includes effluent limitations for BOD<sub>5</sub>, total coliform organisms, and TSS to meet numeric objectives or protect beneficial uses.

WQBELs have been scientifically derived to implement water quality objectives that protect beneficial uses. Both the beneficial uses and the water quality objectives have been approved pursuant to federal law and are the applicable federal water quality standards. To the extent that toxic pollutant WQBELs were derived from the CTR, the CTR is the applicable standard pursuant to 40 CFR 131.38. The scientific procedures for calculating the individual WQBELs for priority pollutants are based on the CTR-SIP, which was approved by USEPA on 18 May 2000. All beneficial uses and water quality objectives contained in the Basin Plan were approved under state law and submitted to and approved by USEPA prior to 30 May 2000. Any water quality objectives and beneficial uses submitted to USEPA prior to 30 May 2000, but not approved by USEPA before that date, are nonetheless "applicable water quality

standards for purposes of the CWA” pursuant to 40 CFR 131.21(c)(1). Collectively, this Order’s restrictions on individual pollutants are no more stringent than required to implement the requirements of the CWA.

### Summary of Final Effluent Limitations Discharge Point No. 001

**Table F-13. Summary of Final Effluent Limitations**

Parameter	Units	Effluent Limitations					Basis <sup>1</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	
Flow	MGD	--	--	4.0	--	--	DC
<b>Conventional Pollutants</b>							
Biochemical Oxygen Demand (5-day @ 20°C)	mg/L	10	15	30	--	--	TTC
	lbs/day <sup>2</sup>	334	500	1,000	--	--	
	% Removal	85	--	--	--	--	CFR
pH	standard units	--	--	--	6.5	8.3	BP/DC
Total Suspended Solids	mg/L	10	15	30	--	--	TTC
	lbs/day <sup>2</sup>	334	500	1,000	--	--	
	% Removal	85	--	--	--	--	CFR
<b>Priority Pollutants</b>							
alpha-BHC	µg/L	--	--	--	--	ND <sup>3</sup>	BP
Bis (2-ethylhexyl) Phthalate	µg/L	1.8	--	3.6	--	--	CTR
Endrin aldehyde	µg/L	--	--	--	--	ND <sup>3</sup>	BP
Heptachlor	µg/L	--	--	--	--	ND <sup>3</sup>	BP
Heptachlor epoxide	µg/L	--	--	--	--	ND <sup>3</sup>	BP
Mercury, Total Recoverable	lbs/month	0.0039 <sup>4</sup>	--	--	--	--	PB
<b>Non-Conventional Pollutants</b>							
Aluminum, Total Recoverable	µg/L	200 <sup>5</sup>	--	--	--	--	SEC MCL
Ammonia Nitrogen, Total (as N)	mg/L	1.2	--	3.1	--	--	NAWQC
	lbs/day <sup>1</sup>	40	--	103	--	--	
Nitrate, plus Nitrite (as N)	mg/L	10	--	--	--	--	MCL
Total Coliform Organisms	MPN/100 mL	--	2.2 <sup>6</sup>	23 <sup>7</sup>	--	240	Title 22
Acute Toxicity	% Survival	--	--	<sup>8</sup>	--	--	BP
Chronic Toxicity	TUc	--	--	<sup>9</sup>	--	--	BP

Parameter	Units	Effluent Limitations					Basis <sup>1</sup>
		Average Monthly	Average Weekly	Maximum Daily	Instantaneous Minimum	Instantaneous Maximum	

- <sup>1</sup> DC – Based on the design capacity of the Facility.  
TTC – Based on tertiary treatment capability. These effluent limitations reflect the capability of a properly operated tertiary treatment plant.  
CFR – Based on secondary treatment standards contained in 40 CFR Part 133.  
BP – Based on water quality objectives contained in the Basin Plan.  
CTR – Based on water quality criteria contained in the California Toxics Rule and applied as specified in the SIP.  
PB – Based on treatment plant performance.  
NAWQC – Based on USEPA's National Ambient Water Quality Criteria for the protection of freshwater aquatic life.  
SEC MCL – Based on the Secondary Maximum Contaminant Level.  
MCL – Based on the Primary Maximum Contaminant Level.  
Title 22 – Based on CA Department of Public Health Reclamation Criteria, CCR, Division 4, Chapter 3 (Title 22).
- <sup>2</sup> Mass-based effluent limitations are based on a permitted average dry weather flow of 4.0 MGD.
- <sup>3</sup> ND indicates non-detect. See section VII.F. of this permit for the protocol for evaluating compliance with the ND effluent limitation.
- <sup>4</sup> The total monthly mass discharge of total mercury shall not exceed 0.0039 lbs/month.
- <sup>5</sup> Applied as an annual average effluent limitation.
- <sup>6</sup> Applied as a 7-day median effluent limitation.
- <sup>7</sup> Not to be exceeded more than once in any 30-day period.
- <sup>8</sup> Survival of aquatic organisms in 96-hour bioassays of undiluted waste shall be no less than:  
Minimum for any one bioassay: 70%  
Median for any three consecutive bioassays: 90%
- <sup>9</sup> There shall be no chronic toxicity in the effluent discharge.

## E. Land Discharge Specifications

1. Land discharge specifications are necessary to protect the beneficial uses of the groundwater. The Discharger currently uses an unlined ~~82~~70 million gallon storage reservoir that has the potential to adversely affect the beneficial uses of groundwater. The reservoir stores secondary treated wastewater prior to tertiary treatment and disinfection. Proper operation of the storage reservoir is necessary to protect groundwater beneficial uses, and therefore, land discharge specifications are established in this Order.
2. In addition, the Division of Dam Safety requires a minimum of 2 feet of freeboard for reservoirs. The storage reservoir is equipped with an overflow control structure that includes an overflow spillway pipe. The top of the spillway pipe is set at 2 feet below the lowest point of overflow of the reservoir levee. The overflow control structure consists of a vertical spillway pipe that is surrounded by a larger pipe. The larger pipe is higher than the top of the spillway pipe and functions to prevent wave action from overtopping the spillway pipe. Order No. R5-2007-0069 required that a minimum of 2 feet of freeboard be maintained from the water surface to the top of the spillway pipe, which is a total freeboard of 4 feet. This Order reduces the freeboard requirement from the water surface to the top of the spillway pipe from 2 feet to 6 inches, which still maintains the minimum 2-foot freeboard requirement. The modification of the storage reservoir operation is based on the following:

- a. The freeboard reduction allows maximization of storage of wastewater to be reclaimed during periods of springtime rains and minimizes discharges to Carson Creek;
- b. The freeboard reduction allows the Discharger to store an additional 9 million gallons (up to a total of ~~82~~70 million gallons) to be reclaimed during the summer; and
- c. The freeboard reduction does not violate the Board's two-foot freeboard requirement.

## **F. Reclamation Specifications**

Treated wastewater discharged for reclamation is regulated under separate waste discharge requirements and must meet the requirements of CCR, Title 22.

## **V. RATIONALE FOR RECEIVING WATER LIMITATIONS**

Basin Plan water quality objectives to protect the beneficial uses of surface water and groundwater include numeric objectives and narrative objectives, including objectives for chemical constituents, toxicity, and tastes and odors. The toxicity objective requires that surface water and groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective requires that surface water and groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use or that exceed the maximum contaminant levels (MCLs) in Title 22, CCR. The tastes and odors objective states that surface water and groundwater shall not contain taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses. The Basin Plan requires the application of the most stringent objective necessary to ensure that surface water and groundwater do not contain chemical constituents, toxic substances, radionuclides, or taste and odor producing substances in concentrations that adversely affect domestic drinking water supply, agricultural supply, or any other beneficial use.

### **A. Surface Water**

1. CWA section 303(a-c), requires states to adopt water quality standards, including criteria where they are necessary to protect beneficial uses. The Central Valley Water Board adopted water quality criteria as water quality objectives in the Basin Plan. The Basin Plan states that “[t]he numerical and narrative water quality objectives define the least stringent standards that the Regional Water Board will apply to regional waters in order to protect the beneficial uses.” The Basin Plan includes numeric and narrative water quality objectives for various beneficial uses and water bodies. This Order contains receiving surface water limitations based on the Basin Plan numerical and narrative water quality objectives for bacteria, biostimulatory substances, color, chemical constituents, dissolved oxygen, floating material, oil and grease, pH, pesticides, radioactivity, suspended sediment,

settleable substances, suspended material, tastes and odors, temperature, toxicity, and turbidity.

- a. **pH.** Order R5-2007-0069 established a receiving water limitation for pH specifying that discharges from the Facility shall not cause the ambient pH to change by more than 0.5 units based on the water quality objective for pH in the Basin Plan, and allowed a 1-month averaging period for calculating pH change. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to delete the portion of the pH water quality objective that limits the change in pH to 0.5 units and the allowance of averaging periods for pH. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and USEPA. Consistent with the revised water quality objective in the Basin Plan, this Order does not require a receiving water limitation for pH change.

In Finding No. 14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the pH receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

Ammonia is the only constituent in the discharge regulated by this Order directly related to pH. The fixed ammonia effluent limitations in this Order are based on reasonable worst-case conditions. Although ammonia criteria are based on pH, and the pH receiving water limitations are more lenient in this Order than in the previous permit, the fixed ammonia limits are more stringent limits, and are developed to protect under worst-case pH conditions. Therefore the relaxation of the pH receiving water limitation will protect aquatic life and other beneficial uses and will not unreasonably affect present and anticipated beneficial uses nor result in water quality less than described in applicable policies. The relaxation of the receiving water limitation is not expected to cause other impacts on water quality. The Central Valley Water Board finds that the relaxation of the pH receiving water limitation (i) is to the maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12).

The revised receiving water limitation for pH, which is based on the amendment to the Basin Plan's pH water quality objective, reflects current scientifically supported pH requirements for the protection of aquatic life and other beneficial uses. The revised receiving water limitation for pH is more consistent with the current USEPA recommended criteria and is fully protective of aquatic life and the other beneficial uses listed in the Basin Plan. Changes in pH when pH is maintained within the range of 6.5 to 8.5 are neither beneficial nor adverse and, therefore, are not considered to be degradation in water quality. Attempting to restrict pH changes to 0.5 pH units would incur substantial costs without

demonstrable benefits to beneficial uses. Thus, any changes in pH that would occur under the revised pH limitation would not only be protective of beneficial uses, but also would be consistent with maximum benefit to people of the State. Therefore the proposed amendment will not violate antidegradation policies.

- b. Turbidity.** Order R5-2007-0069 established a receiving water limitation for turbidity specifying that discharges from the Facility shall not cause the turbidity to increase more than 1 NTU where natural turbidity is between 0 and 5 NTU based on the water quality objective for turbidity in the Basin Plan. The Central Valley Water Board adopted Resolution R5-2007-0136 on 25 October 2007, amending the Basin Plan to limit turbidity to 2 NTU when the natural turbidity is less than 1 NTU. The Basin Plan amendment has been approved by the State Water Board, the Office of Administrative Law, and USEPA.

In Finding No. 14 of Resolution R5-2007-0136 the Central Valley Water Board found that the change in the turbidity receiving water objective is consistent with the State Water Board Resolution No. 68-16, in that the changes to water quality objectives (i) consider maximum benefit to the people of the State, (ii) will not unreasonably affect present and anticipated beneficial use of waters, and (iii) will not result in water quality less than that prescribed in policies, and is consistent with the federal Antidegradation Policy (40 CFR 131.12). This Antidegradation Analysis is applicable to this receiving water, and therefore, an additional antidegradation analysis is not necessary. Thus, consistent with the revised water quality objective in the Basin Plan, this Order limits turbidity in the receiving water to 2 NTU when the natural turbidity is less than 1 NTU.

## **B. Groundwater**

1. The beneficial uses of the underlying ground water are municipal and domestic supply, industrial service supply, industrial process supply, and agricultural supply.
2. Basin Plan water quality objectives include narrative objectives for chemical constituents, tastes and odors, and toxicity of groundwater. The toxicity objective requires that groundwater be maintained free of toxic substances in concentrations that produce detrimental physiological responses in humans, plants, animals, or aquatic life. The chemical constituent objective states groundwater shall not contain chemical constituents in concentrations that adversely affect any beneficial use. The tastes and odors objective prohibits taste- or odor-producing substances in concentrations that cause nuisance or adversely affect beneficial uses.
3. This Order contains a narrative groundwater limit to protect the beneficial uses of the underlying groundwater.

## **VI. RATIONALE FOR MONITORING AND REPORTING REQUIREMENTS**

40 CFR 122.48 requires that all NPDES permits specify requirements for recording and reporting monitoring results. Water Code sections 13267 and 13383 authorize the Regional Water Boards to require technical and monitoring reports. The Monitoring and

Reporting Program (Attachment E) of this Order, establishes monitoring and reporting requirements to implement federal and state requirements. The following provides the rationale for the monitoring and reporting requirements contained in the Monitoring and Reporting Program for the Facility.

### A. Influent Monitoring

1. Influent monitoring is required to collect data on the characteristics of the wastewater and to assess compliance with effluent limitations (e.g., BOD<sub>5</sub> and TSS reduction requirements). The monitoring frequency for flow (continuous) has been retained from Order R5-2007-0069. This Order reduces the monitoring frequency for BOD<sub>5</sub> and TSS from five times per week to three times per week. The Central Valley Water Board finds that this frequency will provide sufficient information to determine compliance with percent removal requirements and monitor the performance of the Facility. Weekly monitoring requirements for electrical conductivity have not been retained from Order R5-2007-0069 as they are not necessary to determine compliance with permit requirements.

### B. Effluent Monitoring

1. Pursuant to the requirements of 40 CFR 122.44(i)(2) effluent monitoring is required for all constituents with effluent limitations. Effluent monitoring is necessary to assess compliance with effluent limitations, assess the effectiveness of the treatment process, and to assess the impacts of the discharge on the receiving stream and groundwater.
2. Effluent monitoring frequencies and sample types for aluminum (monthly), ammonia (weekly), flow (continuous), nitrate (weekly), pH (daily), and temperature (daily), ~~and total coliform organisms (five times per week)~~ have been retained from Order No. R5-2007-0069 to determine compliance with effluent limitations for these parameters, where applicable, and to characterize the effluent.
3. This Order reduces the monitoring frequency for BOD<sub>5</sub>, ~~and~~ TSS, and total coliform organisms from five times per week to three times per week. The Central Valley Water Board finds that this frequency will provide sufficient information to determine compliance with effluent limitations and monitor the performance of the Facility.
4. Order No. R5-2007-0069 established an effluent limitation and monthly monitoring requirements for persistent chlorinated hydrocarbon pesticides. Monitoring data indicates that alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide have reasonable potential to cause or contribute to an exceedance of the Basin Plan objective, while the remaining pesticides were not detected in the effluent. This Order retains monthly monitoring requirements for alpha-BHC, endrin aldehyde, heptachlor, and heptachlor epoxide and discontinues monitoring requirements for the remaining pesticides.
5. Order No. R5-2007-0069 established effluent limitations and monthly monitoring requirements for bis (2-ethylhexyl) phthalate. Effluent limitations for bis (2-ethylhexyl)



phthalate are retained in this Order; however, because an adequate dataset was provided over the term of Order No. R5-2007-0069 (29 samples), this Order reduces the monitoring frequency from monthly to quarterly.

6. Order No. R5-2007-0069 required weekly monitoring for electrical conductivity. The Discharger converted from chlorine disinfection to UV disinfection in May 2010, which significantly reduced salinity concentrations in the effluent. Monitoring data collected since May 2010 indicates that the discharge does not have reasonable potential to cause or contribute to an exceedance of water quality objectives for electrical conductivity. Therefore, this Order reduces the monitoring frequency from weekly to that which is required during the priority pollutant monitoring as required in Attachment I of this Order.
7. This Order establishes monthly monitoring for hardness to ensure that adequate data is available to properly adjust water quality criteria for hardness-based metals.
8. Monitoring data for nitrite is not available to determine if the discharge has reasonable potential to cause or contribute to an exceedance of the Primary MCL for nitrate plus nitrite. Therefore, this Order establishes weekly monitoring for nitrite.
9. Monitoring data collected over the existing permit term for acrylonitrile, benzidine, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(k)fluoranthene, carbon tetrachloride, chlorine residual, chlorpyrifos, chrysene, copper, cyanide, dibenzo(a,h)anthracene, dibromochloromethane, 3,3-dichlorobenzidine, dichlorobromomethane, 1,1-dichloroethylene, 2,6-dinitrotoluene, 1,2-diphenylhydrazine, dissolved oxygen, diquat, indeno(1,2,3-cd)pyrene, iron, manganese (total and dissolved), n-nitrosodimethylamine, n-nitrosodi-n-propylamine, polychlorinated biphenyls, settleable solids, standard minerals, 2,3,7,8-TCDD, thiobencarb, total trihalomethanes, and zinc did not demonstrate reasonable potential to exceed water quality objectives/criteria. Thus, specific monitoring requirements for these parameters have not been retained from Order No. R5-2007-0069.
10. Order No. R5-2007-0069 required monthly monitoring for bis (2-chloroethyl) ether. As described in section IV.C.3.c.i of this Fact Sheet, since the lowest MDLs for the effluent samples collected during the term of Order No. R5-2007-0069 are greater than the applicable CTR criterion, the SIP requires (Section 1.3, Step 8) additional monitoring for the pollutant in place of a WQBEL. This Order requires monitoring for bis (2-chloroethyl) ether monthly during the same year (third or fourth year of the permit term) as the priority pollutant monitoring required in Attachment I of this Order.
11. This Order includes operational specifications for turbidity. This Order moves the point of compliance from the final effluent after disinfection to an internal compliance point prior to disinfection. Therefore, monitoring for turbidity is required at Monitoring Location UVS-001 and effluent monitoring requirements have not been retained in this Order.

12. Priority pollutant data for the effluent has been provided by the Discharger over the term of Order No. R5-2007-0069 and was used to conduct a RPA. In accordance with Section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established is required. Order R5-2007-0069 required annual monitoring for priority pollutants, however, to be consistent with current practice and other recent NPDES permits, this Order requires monitoring every other month at Monitoring Locations EFF-001 and RSW-001 during the 3<sup>rd</sup> or 4<sup>th</sup> year of the permit term in order to collect data to conduct an RPA for the next permit renewal. See Attachment I for more detained requirements related to performing priority pollutant monitoring.
13. California Water Code section 13176, subdivision (a), states: *“The analysis of any material required by [Water Code sections 13000-16104] shall be performed by a laboratory that has accreditation or certification to Article 3 (commencing with Section 100825) of Chapter 4 of Part 1 of Division 101 of the Health and Safety Code.”* DPH certifies laboratories through its Environmental Laboratory Accreditation Program (ELAP).

Section 13176 cannot be interpreted in a manner that would violate federal holding time requirements that apply to NPDES permits pursuant to the Clean Water Act. (Wat. Code §§ 13370, subd. (c), 13372, 13377.) Section 13176 is inapplicable to NPDES permits to the extent it is inconsistent with Clean Water Act requirements. (Wat. Code § 13372, subd. (a).) The holding time requirements are 15 minutes for chlorine residual, dissolved oxygen, and pH and immediate analysis is required for temperature. (40 C.F.R. § 136.3(e), Table II)

### C. Whole Effluent Toxicity Testing Requirements

1. **Acute Toxicity.** Consistent with Order No. R5-2007-0069, 96-hour bioassay testing is required once every two months when discharging to Carson Creek to demonstrate compliance with the effluent limitation for acute toxicity.
2. **Chronic Toxicity.** Consistent with Order No. R5-2007-0069, quarterly chronic whole effluent toxicity testing is required when discharging to Carson Creek in order to demonstrate compliance with the Basin Plan’s narrative toxicity objective.

### D. Receiving Water Monitoring

#### 1. Surface Water

- a. Receiving water monitoring is necessary to assess compliance with receiving water limitations and to assess the impacts of the discharge on the receiving stream.
- b. Receiving water monitoring frequencies and sample types for dissolved oxygen (weekly), electrical conductivity (weekly), ~~fecal coliform organisms (monthly)~~, flow (continuous), hardness (monthly), pH (weekly), temperature (weekly), and turbidity (weekly) have been retained from Order R5-2007-0069.

- c. Monitoring requirements for fecal coliform organisms, radionuclides, and standard minerals have not been retained from Order No. R5-2007-0069 as they are not necessary to determine compliance with permit requirements.
- d. This Order establishes monthly receiving water monitoring requirements for hardness to ensure that adequate data is available to properly adjust water quality criteria for hardness-based metals.
- e. Priority pollutant data for the receiving water has been provided by the Discharger over the term of Order R5-2007-0069, and was used to conduct a RPA. In accordance with Section 1.3 of the SIP, periodic monitoring for priority pollutants for which criteria or objectives apply and for which no effluent limitations have been established. Consistent with Order R5-2007-0069, this Order requires monitoring every other month during the third or fourth year of the permit term for priority pollutants and other pollutants of concern, performed concurrently with effluent monitoring, in order to collect data to conduct an RPA for the next permit renewal. See Attachment I for more detailed requirements related to performing priority pollutant monitoring.

## 2. Groundwater

- a. Water Code section 13267 states, in part, “(a) A Regional Water Board, in establishing...waste discharge requirements... may investigate the quality of any waters of the state within its region” and “(b) (1) In conducting an investigation..., the Regional Water Board may require that any person who... discharges... waste...that could affect the quality of waters within its region shall furnish, under penalty of perjury, technical or monitoring program reports which the Regional Water Board requires. The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports.” The burden, including costs, of these reports shall bear a reasonable relationship to the need for the report and the benefits to be obtained from the reports. In requiring those reports, a Regional Water Board shall provide the person with a written explanation with regard to the need for the reports, and shall identify the evidence that supports requiring that person to provide the reports. The Monitoring and Reporting Program is issued pursuant to Water Code section 13267. The groundwater monitoring and reporting program required by this Order and the Monitoring and Reporting Program are necessary to assure compliance with these waste discharge requirements. The Discharger is responsible for the discharges of waste at the facility subject to this Order.
- b. This Order requires the Discharger to continue groundwater monitoring and includes a regular schedule of groundwater monitoring in the attached Monitoring and Reporting Program. The groundwater monitoring reports are necessary to evaluate impacts to waters of the State to assure protection of beneficial uses and compliance with Central Valley Water Board plans and policies, including Resolution No. 68-16. Evidence in the record includes effluent monitoring data that indicates the presence of constituents that may degrade groundwater and surface water. This Order reduces the groundwater monitoring frequency for

total coliform organisms, total dissolved solids, and nitrate plus nitrate from bi-monthly to annually.

## **E. Other Monitoring Requirements**

### **1. Biosolids Monitoring**

Biosolids monitoring is required to ensure compliance with the biosolids disposal requirements contained in the Special Provision contained in section VI.C.6.a. of this Order. Biosolids disposal requirements are imposed pursuant to 40 CFR Part 503 to protect public health and prevent groundwater degradation.

### **2. UV Disinfection System Monitoring**

UV system specifications and monitoring and reporting is required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens in the wastewater. UV Disinfection system monitoring is imposed pursuant to requirements established by DPH, and the National Water Research Institute (NWRI) and American Water Works Association Research Foundation's (AWWARF) *"Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse"*.

### **3. ~~Pond Monitoring~~**

~~Treatment pond monitoring is required to ensure proper operation of the drain ponds and storage reservoir. Monthly monitoring for dissolved oxygen, pH, electrical conductivity, freeboard, color, odor, and levee condition and annual monitoring for standard minerals and Title 22 Metals has been retained from Order No. R5-2007-0069.~~

### **4.3. Effluent and Receiving Water Characterization Study**

An effluent and receiving water monitoring study is required to ensure adequate information is available for the next permit renewal. The Discharger is required to conduct ~~monthly~~ monitoring of the effluent at Monitoring Location EFF-001 and of the receiving water at Monitoring Location RSW-001 during the 3<sup>rd</sup> or 4<sup>th</sup> year of this permit term for all priority pollutants and other constituents of concern as described in Attachment I.

## **VII. STANDARD PROVISIONS**

Standard Provisions, which apply to all NPDES permits in accordance with 40 CFR 122.41, and additional conditions applicable to specified categories of permits in accordance with 40 CFR 122.42, are provided in Attachment D. The discharger must comply with all standard provisions and with those additional conditions that are applicable under 40 CFR 122.42.

40 CFR 122.41(a)(1) and (b) through (n) establish conditions that apply to all State-issued NPDES permits. These conditions must be incorporated into the permits either expressly or by reference. If incorporated by reference, a specific citation to the

regulations must be included in the Order. 40 CFR 123.25(a)(12) allows the state to omit or modify conditions to impose more stringent requirements. In accordance with 40 CFR 123.25, this Order omits federal conditions that address enforcement authority specified in 40 CFR 122.41(j)(5) and (k)(2) because the enforcement authority under the Water Code is more stringent. In lieu of these conditions, this Order incorporates by reference Water Code section 13387(e).

## A. Special Provisions

### 1. Reopener Provisions

- a. **Mercury.** This provision allows the Central Valley Water Board to reopen this Order in the event mercury is found to be causing toxicity based on acute or chronic toxicity test results, or if a TMDL program is adopted. In addition, this Order may be reopened if the Central Valley Water Board determines that a mercury offset program is feasible for dischargers subject to NPDES permits.
- b. **Whole Effluent Toxicity.** This Order requires the Discharger to investigate the causes of, and identify corrective actions to reduce or eliminate effluent toxicity through a TRE. This Order may be reopened to include a numeric chronic toxicity limitation, a new acute toxicity limitation, and/or a limitation for a specific toxicant identified in the TRE. Additionally, if a numeric chronic toxicity water quality objective is adopted by the State Water Board, this Order may be reopened to include a numeric chronic toxicity limitation based on that objective.
- c. **Water Effects Ratio (WER) and Metal Translators.** A default WER of 1.0 has been used in this Order for calculating criteria for applicable inorganic constituents, except for copper. In addition, default dissolved-to-total metal translators have been used to convert water quality objectives from dissolved to total recoverable. If the Discharger performs studies to determine site-specific WERs and/or site-specific dissolved-to-total metal translators, this Order may be reopened to modify the effluent limitations for the applicable inorganic constituents.

### 2. Special Studies and Additional Monitoring Requirements

- a. **Chronic Whole Effluent Toxicity Requirements.** The Basin Plan contains a narrative toxicity objective that states, “*All waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life.*” (Basin Plan at page III-8.00.) Based on whole effluent chronic toxicity testing performed by the Discharger from September 2007 through January 2012, the discharge has reasonable potential to cause or contribute to an in-stream excursion above of the Basin Plan’s narrative toxicity objective.

This provision requires the Discharger to develop a TRE Workplan in accordance with USEPA guidance. In addition, the provision provides a numeric toxicity

monitoring trigger and requirements for accelerated monitoring, as well as, requirements for TRE initiation if toxicity has been demonstrated.

**Monitoring Trigger.** A numeric toxicity monitoring trigger of  $> 1$  TUC (where TUC =  $100/\text{NOEC}$ ) is applied in the provision, because this Order does not allow any dilution for the chronic condition. Therefore, a TRE is triggered when the effluent exhibits toxicity at 100% effluent.

**Accelerated Monitoring.** The provision requires accelerated WET testing when a regular WET test result exceeds the monitoring trigger. The purpose of accelerated monitoring is to determine, in an expedient manner, whether there is toxicity before requiring the implementation of a TRE. Due to possible seasonality of the toxicity, the accelerated monitoring should be performed in a timely manner, preferably taking no more than 2 to 3 months to complete.

The provision requires accelerated monitoring consisting of four chronic toxicity tests in a six-week period (i.e., one test every two weeks) using the species that exhibited toxicity. Guidance regarding accelerated monitoring and TRE initiation is provided in the *Technical Support Document for Water Quality-based Toxics Control*, EPA/505/2-90-001, March 1991 (TSD). The TSD at page 118 states, “EPA recommends if toxicity is repeatedly or periodically present at levels above effluent limits more than 20 percent of the time, a TRE should be required.” Therefore, four accelerated monitoring tests are required in this provision. If no toxicity is demonstrated in the four accelerated tests, then it demonstrates that toxicity is not present at levels above the monitoring trigger more than 20 percent of the time (only 1 of 5 tests are toxic, including the initial test). However, notwithstanding the accelerated monitoring results, if there is adequate evidence of effluent toxicity (i.e., toxicity present exceeding the monitoring trigger more than 20 percent of the time), the Executive Officer may require that the Discharger initiate a TRE.

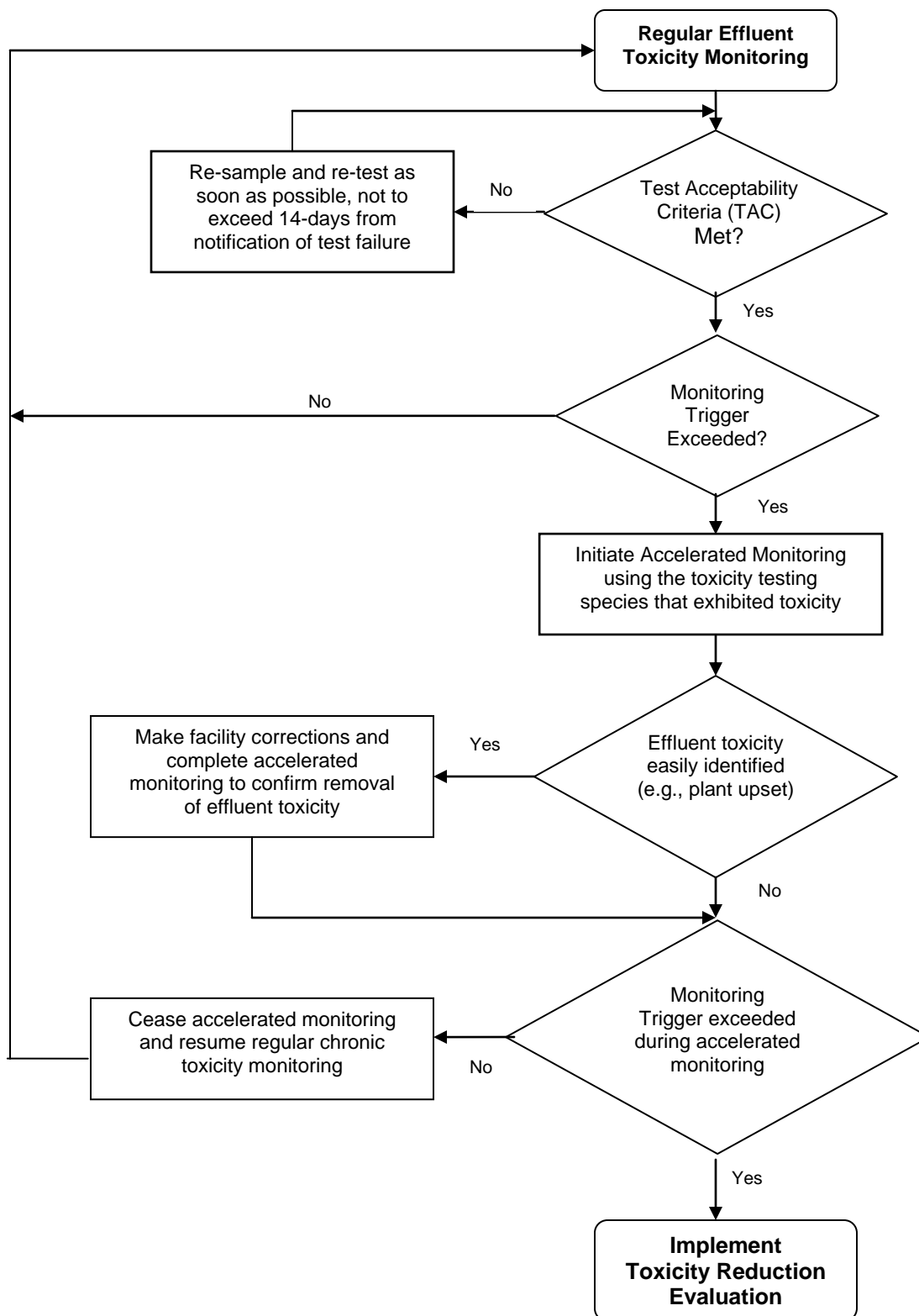
See the WET Accelerated Monitoring Flow Chart (Figure F-1), below, for further clarification of the accelerated monitoring requirements and for the decision points for determining the need for TRE initiation.

**TRE Guidance.** The Discharger is required to prepare a TRE Workplan in accordance with USEPA guidance. Numerous guidance documents are available, as identified below:

- Toxicity Reduction Evaluation Guidance for Municipal Wastewater Treatment Plants, EPA/833-B-99/002, August 1999.
- Generalized Methodology for Conducting Industrial Toxicity Reduction Evaluations (TREs), EPA/600/2-88/070, April 1989.
- Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures, Second Edition, EPA 600/6-91/003, February 1991.

- Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I, EPA/600/6-91/005F, May 1992.
- Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA/600/R-92/080, September 1993.
- Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity, Second Edition, EPA 600/R-92/081, September 1993.
- Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms, Fifth Edition, EPA-821-R-02-012, October 2002.
- Short-term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms, Fourth Edition, EPA-821-R-02-013, October 2002.
- Technical Support Document for Water Quality-based Toxics Control, EPA/505/2-90-001, March 1991.

**Figure F-1  
WET Accelerated Monitoring Flow Chart**





### 3. Best Management Practices and Pollution Prevention

- a. **Salinity Evaluation and Minimization Plan.** The Discharger shall update and implement its salinity evaluation and minimization plan to continue to reduce the discharge of salinity to Carson Creek.

### 4. Construction, Operation, and Maintenance Specifications

- a. **Turbidity and UV Disinfection System Operating Specifications.** Order requires disinfection, while discharging to Carson Creek, at a level equivalent to Title 22 disinfected tertiary recycled water to protect the public from contact with undiluted treated municipal wastewater. The Discharger utilizes tertiary filtration and UV disinfection to meet this level of disinfection.

The DPH developed requirements for turbidity and total coliform organisms to demonstrate that the desired pathogen removal is achieved for Title 22 disinfected tertiary recycled water. Therefore, this Order includes effluent turbidity specifications and total coliform organisms effluent limits. However, for UV disinfection, additional operating specifications are necessary. DPH developed the total coliform organisms levels based on the use of chlorine disinfection. UV disinfection does not disinfect the wastewater in the same manner as chlorine. For facilities that utilize UV disinfection, DPH requires compliance with additional operating specifications to ensure adequate disinfection is provided. Therefore, in addition to turbidity specifications and total coliform organisms effluent limits, this Order includes UV disinfection system operating specifications (e.g., UV dose, UV transmittance, etc.) as recommended by DPH.

UV disinfection system specifications and monitoring and reporting requirements are required to ensure that adequate UV dosage is applied to the wastewater to inactivate pathogens (e.g., viruses) in the wastewater. UV dosage is dependent on several factors such as UV transmittance, UV power setting, wastewater turbidity, and wastewater flow through the UV disinfection system. Monitoring and reporting of these parameters is necessary to determine compliance with minimum dosage requirements established by the DPH and the NWRI and AWWARF's "Ultraviolet Disinfection Guidelines for Drinking Water and Water Reuse" first published in December 2000 revised as a Second Edition dated May 2003. In addition, a memorandum dated 1 November 2004 issued by DPH to Central Valley Water Board executive officers recommended that provisions be included in permits to water recycling treatment plants employing UV disinfection requiring dischargers to establish fixed cleaning frequency of quartz sleeves as well as include provisions that specify minimum delivered UV dose that must be maintained (as recommended by the NWRI/AWWARF UV Disinfection Guidelines).

This Order includes an operating specification for a minimum hourly average UV dose of 100 mJ/cm<sup>2</sup>, which is recommended by the NWRI Guidelines for UV disinfection following granular media filtration to achieve the virus inactivation

equivalent to Title 22 disinfected tertiary recycled water. A minimum hourly average UV transmittance of 55%, per the NWRI Guidelines, and operating specifications to require proper maintenance of the lamp sleeves are also required. If the Discharger conducts a site-specific UV Engineering study that identifies site-specific UV operating specifications that will achieve the virus inactivation equivalent to Title 22 disinfected tertiary recycled water, this Order may be reopened to modify the UV operating specifications, in accordance with Reopener Provision VI.C.1.a.

Turbidity has a major advantage for monitoring filter performance, allowing immediate detection of filter failure and rapid corrective action. The operational specification requires that turbidity prior to disinfection shall not exceed 2 NTU as a daily average; 5 NTU, more than 5 percent of the time within a 24-hour period; and an instantaneous maximum of 10 NTU.

Minimum UV dosage and turbidity specifications are included as operating criteria in section VI.C.4.a and b of this Order and section IX.B. of the Monitoring and Reporting Program (Attachment E) to ensure that adequate disinfection of wastewater is achieved.

- b. Storage Reservoir and Drain Pond Operating Requirements.** The operation and maintenance specifications for the storage reservoir and drain ponds are necessary to protect the beneficial uses of the groundwater. The specifications included in this Order have been modified from the specifications contained in Order No. R5-2007-0069 to clarify between the storage reservoir and the drain ponds. In addition, reporting requirements related to use of the storage reservoir and drain ponds are required to monitor their use and the potential impact on groundwater.

## **5. Special Provisions for Municipal Facilities (POTWs Only)**

### **a. Pretreatment Requirements**

- i.** The Discharger's service area includes one categorical industrial user (CIU). The Discharger submitted an Industrial Pretreatment Program to the Central Valley Water Board and USEPA Region 9 in 2004. The Discharger has since updated the maximum allowable headworks loading (MAHL) and written description of the Industrial Pretreatment Program. This Order does not require the Discharger to update their pretreatment program submission unless directed by USEPA or the Central Valley Water Board; however, this Order does require implementation of the pretreatment program.
- ii.** The federal CWA section 307(b), and federal regulations, 40 CFR Part 403, require publicly owned treatment works to develop an acceptable industrial pretreatment program. A pretreatment program is required to prevent the introduction of pollutants, which will interfere with treatment plant operations or sludge disposal, and prevent pass through of pollutants that exceed water

quality objectives, standards or permit limitations. Pretreatment requirements are imposed pursuant to 40 CFR Part 403.

- iii. The Discharger shall implement and enforce its approved pretreatment program and is an enforceable condition of this Order. If the Discharger fails to perform the pretreatment functions, the Central Valley Water Board, the State Water Board or USEPA may take enforcement actions against the Discharger as authorized by the CWA.
- b. The State Water Board issued General Waste Discharge Requirements for Sanitary Sewer Systems, Water Quality Order No. 2006-0003-DWQ (General Order) on 2 May 2006. The General Order requires public agencies that own or operate sanitary sewer systems with greater than one mile of pipes or sewer lines to enroll for coverage under the General Order. The General Order requires agencies to develop sanitary sewer management plans (SSMPs) and report all sanitary sewer overflows (SSOs), among other requirements and prohibitions.

Furthermore, the General Order contains requirements for operation and maintenance of collection systems and for reporting and mitigating sanitary sewer overflows. Inasmuch that the Discharger's collection system is part of the system that is subject to this Order, certain standard provisions are applicable as specified in Provisions, section VI.C.5. For instance, the 24-hour reporting requirements in this Order are not included in the General Order. The Discharger must comply with both the General Order and this Order. The Discharger and public agencies that are discharging wastewater into the facility were required to obtain enrollment for regulation under the General Order by 1 December 2006.

- c. **Continuous Monitoring Systems.** This Order, and the Monitoring and Reporting Program which is a part of this Order, requires that certain parameters be monitored on a continuous basis. The Facility is typically staffed for 10.5 hours a day and unattended for 13.5 hours per day. Permit violations or system upsets can go undetected during this period. The Discharger has a system in place to automatically contact Facility operators in the event of alarms generated at the wastewater treatment plant. The Discharger is required to establish an electronic system for operator notification based on continuous recording device alarms. For any future facility upgrades, the Discharger shall upgrade the continuous monitoring and notification system simultaneously.

## 6. Other Special Provisions

- a. Consistent with Order No. R5-2007-0069, this Order requires wastewater to be oxidized, coagulated, filtered, and adequately disinfected pursuant to DPH reclamation criteria, CCR, Title 22, division 4, chapter 3 (Title 22), or equivalent.

## **7. Compliance Schedules – Not Applicable**

### **VIII. PUBLIC PARTICIPATION**

The Central Valley Water Board is considering the issuance of WDRs that will serve as an NPDES permit for the Facility. As a step in the WDR adoption process, the Central Valley Water Board staff has developed tentative WDRs. The Central Valley Water Board encourages public participation in the WDR adoption process.

#### **A. Notification of Interested Parties**

The Central Valley Water Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity to submit their written comments and recommendations. Notification was provided through the following **[Describe Notification Process (e.g., newspaper name and date)]**

#### **B. Written Comments**

The staff determinations are tentative. Interested persons are invited to submit written comments concerning these tentative WDRs. Comments must be submitted either in person or by mail to the Executive Office at the Central Valley Water Board at the address above on the cover page of this Order.

To be fully responded to by staff and considered by the Central Valley Water Board, written comments must be received at the Central Valley Water Board offices by 5:00 p.m. on **10 December 2012**.

#### **C. Public Hearing**

The Central Valley Water Board will hold a public hearing on the tentative WDRs during its regular Board meeting on the following date and time and at the following location:

Date: 31 January/1 February 2013  
Time: 8:30 a.m.  
Location: Regional Water Quality Control Board, Central Valley Region  
11020 Sun Center Dr., Suite #200  
Rancho Cordova, CA 95670

Interested persons are invited to attend. At the public hearing, the Central Valley Water Board will hear testimony, if any, pertinent to the discharge, WDRs, and permit. Oral testimony will be heard; however, for accuracy of the record, important testimony should be in writing.

Please be aware that dates and venues may change. Our Web address is [www.waterboards.ca.gov/centralvalley](http://www.waterboards.ca.gov/centralvalley) where you can access the current agenda for changes in dates and locations.

#### **D. Waste Discharge Requirements Petitions**

Any aggrieved person may petition the State Water Board to review the decision of the Central Valley Water Board regarding the final WDRs. The petition must be received by the State Water Board within 30 days of the Central Valley Water Board's action, and must be submitted to the following address:

State Water Resources Control Board  
Office of Chief Counsel  
P.O. Box 100, 1001 I Street  
Sacramento, CA 95812-0100

#### **E. Information and Copying**

The Report of Waste Discharge, related documents, tentative effluent limitations and special provisions, comments received, and other information are on file and may be inspected at the address above at any time between 8:30 a.m. and 4:45 p.m., Monday through Friday. Copying of documents may be arranged through the Central Valley Water Board by calling (916) 464-3291.

#### **F. Register of Interested Persons**

Any person interested in being placed on the mailing list for information regarding the WDRs and NPDES permit should contact the Central Valley Water Board, reference this Facility, and provide a name, address, and phone number.

#### **G. Additional Information**

Requests for additional information or questions regarding this order should be directed to David Kirn at (916) 464-4761.

## ATTACHMENT G – SUMMARY OF REASONABLE POTENTIAL ANALYSIS FOR CONSTITUENTS OF CONCERN

Constituent	Units	MEC	B	C	CMC	CCC	Water & Org	Org. Only	Basin Plan	MCL	Reasonable Potential
alpha-BHC	µg/L	0.014	<0.0016	ND	--	--	0.0039	0.013	ND	--	Yes
Aluminum, Total Recoverable	µg/L	450	82	200	750 <sup>1</sup>	--	--	--	--	200	Yes
Ammonia Nitrogen, Total (as N)	mg/L	1.8	No Data	2.01	3.15 <sup>1</sup>	2.01 <sup>2</sup>	--	--	--	--	Yes
Bis (2-Chloroethyl) Ether	µg/L	<0.46	<1.0	0.031	--	--	0.031	1.4	--	--	Inconclusive
Bis (2-Ethylhexyl) Phthalate	µg/L	5.6	<1.1	1.8	--	--	1.8	5.9	--	4	Yes
Carbon Tetrachloride	µg/L	0.202	<0.077	0.25	--	--	0.44	0.25	--	0.5	No
Chloride	mg/L	36	38	250	--	--	--	--	--	250	No
Copper, Total Recoverable	µg/L	8.0	4.3	51 <sup>4</sup> /65 <sup>5</sup>	73 <sup>4</sup> /97 <sup>5</sup>	51 <sup>4</sup> /65 <sup>5</sup>	1,300	--	--	1,000	No
Cyanide, Total (as CN)	µg/L	4.3 <sup>3</sup>	<0.005	5.2	22	5.2	700	220,000	--	150	No
Dibromochloromethane	µg/L	<0.15 <sup>3</sup>	<0.049	0.41	--	--	0.41	34	--	80	No
Dichlorobromomethane	µg/L	<0.11 <sup>3</sup>	<0.031	0.56	--	--	0.56	46	--	80	No
Electrical Conductivity @ 25°C	µmhos/cm	496 <sup>3</sup>	710	900	--	--	--	--	--	900	No
Endrin Aldehyde	µg/L	0.06	<0.002	ND	--	--	0.76	0.81	ND	--	Yes
Heptachlor	µg/L	0.11	<0.002	ND	0.52	0.0038	0.00021	0.00021	ND	0.01	Yes
Heptachlor Epoxide	µg/L	0.016	<0.002	ND	0.52	0.0038	0.0001	0.00011	ND	0.01	Yes
Iron, Total Recoverable	µg/L	52	250	300	--	--	--	--	--	300	No
Manganese, Total Recoverable	µg/L	33	27	50	--	--	--	--	--	50	No
Total Trihalomethanes <sup>6</sup>	µg/L	0.72 <sup>3,7</sup>	ND	80	--	--	--	--	--	80	No
Zinc, Total Recoverable	µg/L	67.3	4.7	81 <sup>4</sup> /104 <sup>5</sup>	81 <sup>4</sup> /104 <sup>5</sup>	81 <sup>4</sup> /104 <sup>5</sup>	--	--	--	--	No

General Note: All inorganic concentrations are given as a total recoverable.

MEC = Maximum Effluent Concentration

B = Maximum Receiving Water Concentration or lowest detection level, if non-detect

C = Criterion used for Reasonable Potential Analysis

CMC = Criterion Maximum Concentration (CTR or NTR)

CCC = Criterion Continuous Concentration (CTR or NTR)

Water & Org = Human Health Criterion for Consumption of Water & Organisms (CTR or NTR)

Org. Only = Human Health Criterion for Consumption of Organisms Only (CTR or NTR)

Basin Plan = Numeric Site-specific Basin Plan Water Quality Objective

MCL = Drinking Water Standards Maximum Contaminant Level

NA = Not Available

ND = Non-detect

Footnotes:

- (1) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 1-hour Average.
- (2) USEPA National Recommended Ambient Water Quality Criteria, Freshwater Aquatic Life Protection, 30-day Average.
- (3) Represents effluent monitoring data collected since the conversion from chlorine disinfection to UV disinfection in May 2010.
- (4) Criterion to be compared to the maximum effluent concentration.
- (5) Criterion to be compared to the maximum upstream receiving water concentration.
- (6) Total trihalomethanes include bromoform, chloroform, dibromochloromethane, and dichlorobromomethane.
- (7) Following the conversion to UV disinfection in May 2010, the MEC for chloroform was 0.72 µg/L and bromoform, dibromochloromethane, and dichlorobromomethane were not been detected in the discharge.

## ATTACHMENT H – CALCULATION OF WQBELS

Parameter	Units	Most Stringent Criteria			HH Calculations <sup>1</sup>			Aquatic Life Calculations <sup>1</sup>											Final Effluent Limitations	
		HH	CMC	CCC	ECA <sub>HH</sub> = AMEL <sub>HH</sub>	AMEL/MDEL Multiplier <sub>HH</sub>	MDEL <sub>HH</sub>	ECA <sub>acute</sub>	ECA Multiplier <sub>acute</sub>	LTA <sub>acute</sub>	ECA <sub>chronic</sub>	ECA Multiplier <sub>chronic</sub>	LTA <sub>chronic</sub>	Lowest LTA	AMEL Multiplier <sub>95</sub>	AMEL <sub>AL</sub>	MDEL Multiplier <sub>99</sub>	MDEL <sub>AL</sub>	Lowest AMEL	Lowest MDEL
Ammonia Nitrogen, Total (as N)	mg/L	--	3.15	2.01	--	--	--	3.15	0.20	0.63	2.01	0.67	1.35	0.63	1.95	1.2	4.9	3.1	1.2	3.1
Bis (2-ethylhexyl) Phthalate	µg/L	1.8	--	--	1.8	2.01	3.6	--	--	--	--	--	--	--	--	--	--	--	1.8	3.6

<sup>1</sup> As described in section IV.C.2.c of the Fact Sheet (Attachment F), calculation of effluent limitations for the protection of human health and aquatic life are determined without the allowance of dilution credits.

## ATTACHMENT I – EFFLUENT AND RECEIVING WATER CHARACTERIZATION STUDY

- I. Background.** Sections 2.4.1 through 2.4.4 of the SIP provide minimum standards for analyses and reporting. (Copies of the SIP may be obtained from the State Water Resources Control Board, or downloaded from <http://www.waterboards.ca.gov/iswp/index.html>). To implement the SIP, effluent and receiving water data are needed for all priority pollutants. Effluent and receiving water pH and hardness are required to evaluate the toxicity of certain priority pollutants (such as heavy metals) where the toxicity of the constituents varies with pH and/or hardness. Section 3 of the SIP prescribes mandatory monitoring of dioxin congeners. In addition to specific requirements of the SIP, the Central Valley Water Board is requiring the following monitoring:
- A. Drinking water constituents.** Constituents for which drinking water Maximum Contaminant Levels (MCLs) have been prescribed in the California Code of Regulation are included in the *Water Quality Control Plan, Fourth Edition, for the Sacramento and San Joaquin River Basins* (Basin Plan). The Basin Plan defines virtually all surface waters within the Central Valley Region as having existing or potential beneficial uses for municipal and domestic supply. The Basin Plan further requires that, at a minimum, water designated for use as domestic or municipal supply shall not contain concentrations of chemical constituents in excess of the MCLs contained in the California Code of Regulations.
  - B. Effluent and receiving water temperature.** This is both a concern for application of certain temperature-sensitive constituents, such as fluoride, and for compliance with the Basin Plan's thermal discharge requirements.
  - C. Effluent and receiving water hardness and pH.** These are necessary because several of the CTR constituents are hardness and pH dependent.
- II. Monitoring Requirements**
- A. Alternate Months Monitoring.** Priority pollutant samples shall be collected from the effluent and upstream receiving water (Monitoring Locations EFF-001 and RSW-001, respectively) and analyzed for the constituents listed in Table I-1. Monitoring shall be conducted for 1 year and samples taken in alternate months (e.g. January, March, May, July, September, and November). The results of such monitoring shall be submitted to the Central Valley Water Board within 6 months following the final monitoring event. Each individual monitoring event shall provide representative sample results for the effluent and upstream receiving water.
  - B. Concurrent Sampling.** Effluent and receiving water sampling shall be performed at approximately the same time, on the same date.
  - C. Sample Type.** All effluent samples shall be taken as 24-hour flow proportioned composite samples, unless not appropriate to meet analytical holding time requirements per 40 CFR 136. Samples for bis (2-ethylhexyl) phthalate analysis shall be collected as



a grab sample, due to the potential for sample contamination from composite sampler tubing. The effluent sample collection type and rationale shall be defined in the study work plan. All receiving water samples shall be taken as grab samples.

**D. Additional Monitoring/Reporting Requirements.** The Discharger shall conduct the monitoring and reporting in accordance with the General Monitoring Provisions and Reporting Requirements in Attachment E.

**Table I-1. Priority Pollutants and other constituents**

CTR #	Constituent	CAS Number	Maximum Reporting Level <sup>1</sup>	Minimum Level from SIP
			μg/L or noted	
28	1,1-Dichloroethane	75343	0.5	
30	1,1-Dichloroethene	75354	0.5	
41	1,1,1-Trichloroethane	71556	0.5	
42	1,1,2-Trichloroethane	79005	0.5	
37	1,1,2,2-Tetrachloroethane	79345	0.5	
75	1,2-Dichlorobenzene	95501	0.5	
29	1,2-Dichloroethane	107062	0.5	
	cis-1,2-Dichloroethene	156592	0.5	
31	1,2-Dichloropropane	78875	0.5	
101	1,2,4-Trichlorobenzene	120821	0.5	
76	1,3-Dichlorobenzene	541731	0.5	
32	1,3-Dichloropropene	542756	0.5	
77	1,4-Dichlorobenzene	106467	0.5	
17	Acrolein	107028	2.0	
18	Acrylonitrile	107131	2.0	
19	Benzene	71432	0.5	
20	Bromoform	75252	0.5	
34	Bromomethane	74839	1.0	
21	Carbon tetrachloride	56235	0.5	
22	Chlorobenzene (mono chlorobenzene)	108907	0.5	
24	Chloroethane	75003	0.5	
25	2- Chloroethyl vinyl ether	110758	1	
26	Chloroform	67663	0.5	
35	Chloromethane	74873	0.5	
23	Dibromochloromethane	124481	0.5	
27	Dichlorobromomethane	75274	0.5	

<sup>1</sup> The reporting levels required in these tables for priority pollutant constituents are established based on Section 2.4.2 and Appendix 4 of the SIP.

CTR #	Constituent	CAS Number	Maximum Reporting Level
			Minimum Level from SIP µg/L or noted
36	Dichloromethane	75092	0.5
33	Ethylbenzene	100414	0.5
88	Hexachlorobenzene	118741	1
89	Hexachlorobutadiene	87683	1
91	Hexachloroethane	67721	1
94	Naphthalene	91203	10
38	Tetrachloroethene	127184	0.5
39	Toluene	108883	0.5
40	trans-1,2-Dichloroethylene	156605	0.5
43	Trichloroethene	79016	0.5
44	Vinyl chloride	75014	0.5
	Methyl-tert-butyl ether (MTBE)	1634044	0.5
	Trichlorofluoromethane	75694	5
	1,1,2-Trichloro-1,2,2-Trifluoroethane	76131	10
	Styrene	100425	0.5
	Xylenes	1330207	0.5
60	1,2-Benzanthracene	56553	5
85	1,2-Diphenylhydrazine	122667	1
45	2-Chlorophenol	95578	2
46	2,4-Dichlorophenol	120832	1
47	2,4-Dimethylphenol	105679	2
49	2,4-Dinitrophenol	51285	5
82	2,4-Dinitrotoluene	121142	5
55	2,4,6-Trichlorophenol	88062	10
83	2,6-Dinitrotoluene	606202	5
50	2-Nitrophenol	25154557	10
71	2-Chloronaphthalene	91587	10
78	3,3'-Dichlorobenzidine	91941	5
62	3,4-Benzofluoranthene	205992	10
52	4-Chloro-3-methylphenol	59507	5
48	4,6-Dinitro-2-methylphenol	534521	10
51	4-Nitrophenol	100027	5
69	4-Bromophenyl phenyl ether	101553	10
72	4-Chlorophenyl phenyl ether	7005723	5
56	Acenaphthene	83329	1
57	Acenaphthylene	208968	10
58	Anthracene	120127	10

CTR #	Constituent	CAS Number	Maximum Reporting Level
			Minimum Level from SIP µg/L or noted
59	Benzidine	92875	5
61	Benzo(a)pyrene (3,4-Benzopyrene)	50328	0.1
63	Benzo(g,h,i)perylene	191242	5
64	Benzo(k)fluoranthene	207089	2
65	Bis(2-chloroethoxy) methane	111911	5
67	Bis(2-chloroisopropyl) ether	39638329	10
68	Bis(2-ethylhexyl) phthalate	117817	5
70	Butyl benzyl phthalate	85687	10
73	Chrysene	218019	5
81	Di-n-butylphthalate	84742	10
84	Di-n-octylphthalate	117840	10
74	Dibenzo(a,h)-anthracene	53703	0.1
79	Diethyl phthalate	84662	2
80	Dimethyl phthalate	131113	2
86	Fluoranthene	206440	10
87	Fluorene	86737	10
90	Hexachlorocyclopentadiene	77474	1
92	Indeno(1,2,3-c,d)pyrene	193395	0.05
93	Isophorone	78591	1
98	N-Nitrosodiphenylamine	86306	1
96	N-Nitrosodimethylamine	62759	5
97	N-Nitrosodi-n-propylamine	621647	5
95	Nitrobenzene	98953	10
53	Pentachlorophenol	87865	0.2
99	Phenanthrene	85018	5
54	Phenol	108952	1
100	Pyrene	129000	10
	Aluminum	7429905	50
1	Antimony	7440360	5
2	Arsenic	7440382	0.01
15	Asbestos	1332214	0.2 MFL >10um
	Barium	7440393	100
3	Beryllium	7440417	1
4	Cadmium	7440439	0.25
5a	Chromium (total)	7440473	2
5b	Chromium (VI)	18540299	0.5
6	Copper	7440508	0.5

CTR #	Constituent	CAS Number	Maximum Reporting Level
			Minimum Level from SIP µg/L or noted
14	Cyanide	57125	5
	Fluoride	7782414	0.1
	Iron	7439896	100
7	Lead	7439921	0.5
8	Mercury	7439976	0.0002 (11)
	Manganese	7439965	20
	Molybdenum	7439987	1
9	Nickel	7440020	5
10	Selenium	7782492	5
11	Silver	7440224	1
12	Thallium	7440280	1
	Tributyltin	688733	0.002
13	Zinc	7440666	10
110	4,4'-DDD	72548	0.02
109	4,4'-DDE	72559	0.01
108	4,4'-DDT	50293	0.01
112	alpha-Endosulfan	959988	0.02
103	alpha-Hexachlorocyclohexane (BHC)	319846	0.01
	Alachlor	15972608	1
102	Aldrin	309002	0.005
113	beta-Endosulfan	33213659	0.01
104	beta-Hexachlorocyclohexane	319857	0.005
107	Chlordane	57749	0.1
106	delta-Hexachlorocyclohexane	319868	0.005
111	Dieldrin	60571	0.01
114	Endosulfan sulfate	1031078	0.05
115	Endrin	72208	0.01
116	Endrin Aldehyde	7421934	0.01
117	Heptachlor	76448	0.01
118	Heptachlor Epoxide	1024573	0.01
105	Lindane (gamma-Hexachlorocyclohexane)	58899	0.019
119	PCB-1016	12674112	0.5
120	PCB-1221	11104282	0.5
121	PCB-1232	11141165	0.5
122	PCB-1242	53469219	0.5
123	PCB-1248	12672296	0.5
124	PCB-1254	11097691	0.5

CTR #	Constituent	CAS Number	Maximum Reporting Level
			Minimum Level from SIP µg/L or noted
125	PCB-1260	11096825	0.5
126	Toxaphene	8001352	0.5
	Atrazine	1912249	1
	Bentazon	25057890	2
	Carbofuran	1563662	5
	2,4-D	94757	10
	Dalapon	75990	10
	1,2-Dibromo-3-chloropropane (DBCP)	96128	0.01
	Di(2-ethylhexyl)adipate	103231	5
	Dinoseb	88857	2
	Diquat	85007	4
	Endothal	145733	45
	Ethylene Dibromide	106934	0.02
	Glyphosate	1071836	25
	Methoxychlor	72435	10
	Molinate (Ordram)	2212671	2
	Oxamyl	23135220	20
	Picloram	1918021	1
	Simazine (Princep)	122349	1
	Thiobencarb	28249776	1
16	2,3,7,8-TCDD (Dioxin)	1746016	5.00E-06
	2,4,5-TP (Silvex)	93765	1
	Diazinon	333415	0.25
	Chlorpyrifos	2921882	1
	Ammonia (as N)	7664417	
	Chloride	16887006	
	Electrical Conductivity		
	Flow		
	Hardness (as CaCO <sub>3</sub> )		
	Foaming Agents (MBAS)		
	Nitrate (as N)	14797558	2,000
	Nitrite (as N)	14797650	400
	pH		0.1
	Phosphorus, Total (as P)	7723140	
	Specific conductance (EC)		
	Sulfate		500
	Sulfide (as S)		

CTR #	Constituent	CAS Number	Maximum Reporting Level	Minimum Level from SIP
			µg/L or noted	
	Sulfite (as SO <sub>3</sub> )			
	Temperature			
	Total Dissolved Solids (TDS)			

### III. Additional Study Requirements

**A. Laboratory Requirements.** The laboratory analyzing the monitoring samples shall be certified by the Department of Health Services in accordance with the provisions of Water Code 13176 and must include quality assurance/quality control data with their reports (ELAP certified).

**B. Criterion Quantitation Limit (CQL).** The criterion quantitation limits will be equal to or lower than the minimum levels (MLs) in Appendix 4 of the SIP or the detection limits for purposes of reporting (DLRs) below the controlling water quality criterion concentrations summarized in Table I-1 of this Order. In cases where the controlling water quality criteria concentrations are below the detection limits of all approved analytical methods, the best available procedure will be utilized that meets the lowest of the MLs and DLR. Table I-1 contains suggested analytical procedures. The Discharger is not required to use these specific procedures as long as the procedure selected achieves the desired minimum detection level.

**C. Method Detection Limit (MDL).** The method detection limit for the laboratory shall be determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).

**D. Reporting Limit (RL).** The reporting limit for the laboratory. This is the lowest quantifiable concentration that the laboratory can determine. Ideally, the RL should be equal to or lower than the CQL to meet the purposes of this monitoring.

**E. Reporting Protocols.** The results of analytical determinations for the presence of chemical constituents in a sample shall use the following reporting protocols:

1. Sample results greater than or equal to the reported RL shall be reported as measured by the laboratory (i.e., the measured chemical concentration in the sample).
2. Sample results less than the reported RL, but greater than or equal to the laboratory's MDL, shall be reported as "Detected, but Not Quantified," or DNQ. The estimated chemical concentration of the sample shall also be reported.
3. For the purposes of data collection, the laboratory shall write the estimated chemical concentration next to DNQ as well as the words "Estimated Concentration" (may shortened to "Est. Conc."). The laboratory, if such information is available, may include numerical estimates of the data quantity for the reported result. Numerical estimates of data quality may be percent accuracy (+ or - a percentage of the

~~reported value), numerical ranges (low and high), or any other means considered appropriate by the laboratory.~~

- ~~4. Sample results that are less than the laboratory's MDL shall be reported as "Not Detected" or ND.~~

**~~F. Data Format.~~** ~~The monitoring report shall contain the following information for each pollutant:~~

- ~~1. The name of the constituent.~~
- ~~2. Sampling location.~~
- ~~3. The date the sample was collected.~~
- ~~4. The time the sample was collected.~~
- ~~5. The date the sample was analyzed. For organic analyses, the extraction data will also be indicated to assure that hold times are not exceeded for prepared samples.~~
- ~~6. The analytical method utilized.~~
- ~~7. The measured or estimated concentration.~~
- ~~8. The required Criterion Quantitation Limit (CQL).~~
- ~~9. The laboratory's current Method Detection Limit (MDL), as determined by the procedure found in 40 CFR Part 136, Appendix B (revised as of May 14, 1999).~~
- ~~10. The laboratory's lowest reporting limit (RL).~~
- ~~11. Any additional comments.~~